

November/December 1992 \$2.00

MONTANA OUTDOORS





OUR POINT OF VIEW



MICHAEL MAURO

LIFE CYCLES are as much a part of this agency's existence as they are of the existence of the fish, the wildlife, and the habitat we manage.

Our employees understand the biological absolute of life and death and the intermediate stage of adolescence—the maturing and aging that occur in every species from elk to lodgepole pine to man and woman. This agency not only accepts this phenomenon; we utilize its tenets as the foundation of our science. We strive to manage and modify wildlife and wild habitat to maintain a healthy, vibrant, wild system capable of providing the amenities so sought after by all of us.

Perhaps those of us who work for this agency need to better understand how life cycles interface with the important work we do so that we can better manage our future. Just as seasons, weather, and the unstoppable marching of time mark the life cycles of plants and animals, this agency's life cycle is clearly marked by a fourth-year process called an election. Just as spring heralds a time of renewal in the plant and animal kingdom, with each new governor comes rebirth—an opportunity for agency revitalization. And while there is certainly pain in this process, there is also the vitality and strength of new growth; there is a new administration charged by a majority of Montanans to seek solutions to the problems of the past and to create

opportunity for the future.

This election process brings change—change we as individuals may fear: for we fear the unknown. Yet enthusiasm, opportunity for growth, and new ideas should outweigh any fear of change. Governmental agencies like ours *must* change. We must accept it as we do the absolute biological change that is so much a part of the plant and animal kingdom, so much a part of our business, and so much a part of our personal lives.

This administration's life cycle has been a positive time for our agency, for sportsmen and women, and for the resources we hold in our trust. We have changed and grown and learned to adapt to a quickly and ever-changing Montana environment. We have learned to listen more carefully to our customers. We have learned to communicate more effectively. We have stood and made a difference on difficult and emotional issues like Yellowstone bison. We have worked with our friends on the Flathead Indian Reservation to negotiate a landmark agreement to better manage the fish and wildlife resources of this spectacular Montana area. We have focused the financial need to preserve our past and chronicle our future through our state parks. Our governor, our sportsmen and women, and our Legislature have stepped forward to provide the necessary revenue to adequately fund our important

fish, wildlife, conservation education, and enforcement programs for the next half decade. Our Fish and Game Commission requested (and the Legislature approved) changing its name to the Montana Fish, Wildlife & Parks Commission to more accurately reflect its responsibilities. We have stood rock solid for hunting and hunters, for fishing and fishermen and women, and for trapping and trappers as our heritage and as a needed scientific wildlife management tool.

As this cycle comes to an end and we anticipate the revitalization and rebirth of this agency in a new administration, we do so with the knowledge that this agency cares and Montanans care about our wild, our recreational, and our historical and cultural heritage.

The future appears bright for Montana's Department of Fish, Wildlife & Parks. We have learned from the past, embraced the present, and look forward to tomorrow and our future.

K.L. Cool
Director

**Montana Department of Fish, Wildlife
& Parks**



Spawning kokanee salmon will attract hundreds of bald eagles to Hauser Lake near Helena this fall (page 31).

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COVERS

Covers—Bald eagles, such as the majestic one photographed by Mike Logan of Helena, will grab the attention of thousands of viewers as the eagles gather at Hauser Lake not far from the Capital City. Eagles concentrate every autumn to feed on kokanee salmon in a unique event that provides professional and amateur eagle watchers some spectacular viewing opportunities. This issue's back cover could well be titled, "The Subject Was Mule Deer." This dandy buck was photographed by Kalispell photographer Bill Swanson. For more photos of "one of the smartest big game animals in North America," turn to page 27.



PHIL FARNES

BULL TALK

A cold morning. The frigid air stings his nostrils each time he inhales. Each exhalation is a golden mist, as the first faint rays of light dance among the vapor droplets. His frosty breath contrasts sharply with his silhouette against the morning sky at his back. Rose, red, and eager yellow come the day, casting a mysterious, magic spell on the surrounding mountains. It has just now reached him and the 20 other bull elk with which he shares this ridge on the valley's rim. Here the open foothills meet the dark, foreboding forests of the higher mountains. Snow lies too deep there now. Below him, in the shadow of the gloomy mountains, most of the valley still hangs between night and day. A sea of cold blue and fading black twilight with daybreak swimming above. Soon, morning will touch the valley floor.

From atop this windswept vantage point, the magnificent bull can see thousands of elk below. Mostly cows, calves, and smaller bulls down there in the valley which stretches over 30 miles downriver. Here are perhaps 5,000 of his species along with somewhat less than half that number of bison. Mule deer, pronghorn antelope, and bighorn sheep are also around where they find places to their liking.

Nearly a quarter of all the elk wintering here have antlers. Bull calves don't. They'll start growing their first set in the spring. Most bulls have been through at least two winters and are old enough to carry graceful, multi-tined, backswept antlers. The yearlings, mostly spikes, who make up about 25% of the antlered bulls, will grow some tines on their antlers next year.

Some of the bulls, like himself, have been through more than six winters. They are now fully grown and mature. Powerful. Magnificent. They carry racks singularly impressive in their mass and majesty. Beautiful and symmetric with heavy beams polished a dark brown, long tines, and contrasting dense tips the color of bone. The tremendous antlers bequeath status among bulls. During the rut, about the only time of the year when he really cares at all about the cows, his status is of the utmost importance. Status determines whether he will breed very many cows.

Today the frenzied activity of the rut is but a foggy, distant

memory. He slowly turns his head. The sunlight, stronger now, plays and dashes along his antlers, highlighting their beauty. All the more impressive. He looks again down into the valley along the ice-choked river where the new day is beginning to paint the upper branches of the cottonwoods a frozen peach-rose.

Cold still, but he's not uncomfortable. Out of the corner of his eye he catches sight of a windblown rough fescue plant. He is just lowering his head to nibble it when the bull in front of him, 30 yards away and just a bit farther up the ridge, coughs. Looking up, the picture of that bull, sharply outlined against the rushing new day with the glory of the morning sunlight captured in the lungful of vapor, momentarily stays his glance. He watches for a few moments as the breath floats lazily upward, the bit of vibrant morning yellow caught there waning fainter and fainter until it's lost in the stillness.

This picture could have been almost anywhere among the grand valleys of the West's big game winter ranges some 150 or more years ago. Few places offer sights like this today. The grand valleys are still here, albeit noticeably different. And there are still places where animals can live. Most anyway. Huge herds of roaming bison are gone; some bison are still found in isolated but not forgotten populations. But there are still elk and many other big game species. These in fact are some of the bright spots in modern wildlife management. There are more elk now than at the turn of the century by which time they had nearly been wiped out. Yet something is different here too. In many places, one would be hard pressed to find a bull 4 years old, to say nothing of a bull fully prime. This brings us to the subject of this article: bull elk.

Two things about bull elk in Montana will be discussed: (1) their history and evolution, and (2) the changes in antlers, body size, and ecology as a bull grows from calf to old age.

HISTORY AND EVOLUTION

Elk as a species have been around a very long time. Probably at least a million and a half years. They are relative newcomers to Montana though. After originating somewhere in south central Asia, populations gradually dispersed over the periodically exposed Bering Land Bridge to the Western Hemisphere perhaps

BY JOHN VORE

a quarter-million years ago. Even then they were largely restricted to the northwestern part of our continent in what is now Alaska and the Yukon Territory. Elk survived there because vast portions of the area escaped glaciation when much of the rest of the continent was covered with ice. Appropriately enough, this area is called the Alaskan Refugium.

Over the last few million years, the huge continental glaciers that covered much of North America have ebbed and flowed in cycles of tens of thousands of years. During those tens of millennia between glaciations, the refugia elk populations expanded their range and pioneered new territory. Thus, by the relatively recent date of perhaps a mere 70,000 to 120,000 years ago, elk made it into what is now Montana. To be sure, there have been glaciations since then and areas tenable by elk have been, in geologic time, constantly appearing and disappearing.

Although it varies with the status of the population, unhunted or very lightly hunted populations today generally have about one-fifth to one-quarter of the population as antlered bulls. Most of those bulls are older than yearlings. For a variety of reasons including higher energy demands as calves, different behaviors, fighting mortality, and entering winters in poorer condition, bulls naturally don't live as long as cows. Even in unhunted herds the ratio of bulls to cows is often about 1:2.

Many people don't realize what a mature bull is because they've never seen one. So, let's take a look at this creature called a bull elk. From birth to old age, what does he look like? What's his place in

elk society?

To assist in making comparisons, Boone and Crockett (B&C) scores will be used. Originally devised as a way to measure trophies, such scoring is also a useful method for measuring growth. For bulls 2 years old and older, the score is a total, in inches (called points), of beam and tine lengths, beam circumferences, and rack spread.

It must be remembered that with elk, as with people, there is variation among individuals and between areas. For instance, an average 7-year-old bull from Montana has antlers that score 300 points, but may commonly range from 250 to 330. A small set of healthy 7-year-old antlers from New Mexico scored 259 points, a large set 365.

GROWTH

CALF—THE FIRST YEAR

When born in June, a bull weighs about 30 to 35 pounds. He doesn't sport antlers his first fall, but by April, before his first birthday, he begins to grow his first set. By fall he weighs about 275 pounds. Through his first year he sticks pretty close to his mother. He learns lessons about being an elk. He's taught where to find food and shelter. He also begins to learn about pecking orders and accepted behaviors among his peers and superiors.

Bull calves don't have antlers their first fall, but antler growth begins before their first birthday.



BARBARA THOMAS



TOM WARREN

Most yearling bulls grow "spikes" (left), straight antlers without branches that average about 16 inches long. Two-year-old bulls, or "raghorns," typically have antlers with five points, but three and four are also common. The antlers at right are from a 2-1/2-year-old bull and have a Boone and Crockett score of 157.

YEARLING—THE FIRST ANTLERS

Most yearling bulls grow what are known as "spikes," i.e., straight antlers without branches that average about 16 inches long. However, one of every four or five yearlings grows antlers with some sort of branching near the tip; they rarely grow typical brow tines on the lower half of their antlers. From his first set of antlers until well into maturity, the antlers will grow longer, heavier, and wider. By fall, the average yearling weighs around 440 pounds.

Behaviorally, it's almost as though a yearling doesn't know he's a bull. He's not attuned to the social signals that come with maturity in elk society. During most of the year, the yearling bull is still found with the cows and calves. But when the rut begins, older bulls joining cow/calf groups for the mating season will probably run off yearling bulls. After the rut, yearlings may rejoin cow/calf groups for the winter.

In the absence of older bulls, yearlings are capable of breeding the cows. However, they're not particularly competent at it. Although physically capable of producing sperm, behaviorally they're a long way from maturity. Their clumsy attempts at breeding occur later in the rutting season because of a latent and lesser hormone production.

TWO-YEAR-OLD—RAGHORN

During his second year, a bull grows the branched antlers characteristic of the species. Some people call an animal in this

stage a "rack bull." The main beams begin to sweep out to the sides and back; a typical 2-year-old has an antler with five points, but three and four points are also common. Six points on an antler is less common. Two-year-olds are often known as "brush-heads," "brush bulls," or "raghorns." An average main beam length is about 26 inches with a B&C score of about 173. By the fall of his second year, a bull will tip the scales at about 550 pounds.

One now also sees a difference in shape and coloration. He is deeper through the chest and more muscular. His body hair becomes straw-yellow while his head, mane, and legs are dark brown, tending toward black. Yearling bulls, too, may show the beginnings of this coloration but not as markedly as bulls 2 years old and older.

Socially, these 2-year-old guys are wanderers. By now, they've figured out that they're bulls and they really don't want to be with the cows anymore, but they don't know what to do about it. They're out to set up their own camp, to carve out their place, but they don't really fit in with older bull society yet either. So—not unlike an 18- or 20-year-old human male—they wander. By winter, some may end up with cow groups, others with bull groups. Most bulls that disperse from their maternal home range are 2-year-olds. This wandering is perhaps the biggest reason why they are more vulnerable to hunters than any other age class.

THREE-YEAR-OLD—SMALL SIX-POINTER

At 3, an average bull sports his first set of six-point antlers, albeit



TOM WARREN

A 4-year-old bull's antlers probably have their maximum number of points, but in the next two years they will become thicker, heavier, and more impressive. The 4-1/2-year-old bull on the left has a Boone and Crockett score of 262, while the 6-1/2-year-old bull on the right scores 308.

usually small and spindly. The main beam is somewhere around 34 inches long and the average rack scores about 225 B&C points. By now he weighs around 640 pounds.

He now enters the loose-knit society of bull "bachelor herds." These groups are often bulls of nearly the same age. On winter ranges, one often sees groups of 10 to 30 younger bulls, or similarly sized groups of older bulls. Even though at 3 he has now joined bull society, he is still a subordinate and will be for the next two or three years.

FOUR TO SIX YEARS OLD—MATURING

By the time he's 4, a bull's antlers probably have their maximum number of points, but he is still young and his antlers will get bigger. From 4 through 6, a bull adds length and mass to his antlers and continues to add more muscle to his body. At 4, his rack likely scores in the neighborhood of 250 points and the main beam averages about 38 inches.

Many Montana hunters feel a typical 4-year-old is a "big" bull. However, over the next two years he will likely add about nine inches of length to the main beams and increase the overall score of his antlers by over 30 points. Although it adds little to the score, the antlers also become thicker, heavier, and more impressive. Too, he'll increase his body weight by about 100 pounds.

Through the course of reaching maturity the young bull is learning what it means to be a part of this fraternal society, finding

out where he fits in. His status during the course of the year strongly influences how he will function during the rut. And his status as a young bull will likely influence his status as an old bull.

Several possibilities exist regarding a bull's future behavior as a male, many of these determined by his status. In his prime will he be a dominant bull, one of the first to tend a large harem? Will he be a "slinker" and try to gather a harem from among vagrant cows going between harems? Will he only be able to tend a harem later in the rut when many of the more dominant bulls are tired out?

SEVEN TO 11 YEARS OLD—PRIME AGE

At about 7 years old, a bull is truly in his prime. These are the bulls you see on the covers of sporting magazines—the type most people picture in their minds when they think of a bull elk. His antlers are heavy, long, massive, and wide. He is at the peak of his physical size and strength. Typically his antlers will measure from 45 to 50 inches long and score in the neighborhood of 300 to 320 points. He probably weighs between 750 and 800 pounds.

Prime-age bulls are vitally important to a smoothly functioning elk society. Since breeding is probably due more to the cow's choice of a bull than to the bull "forcing" the cow to stay in his harem, the number and type of bulls the cow has to choose from is important. Will the bull whose harem she joins be able to fend off other suitors and spare her the harassment she would face from a host of less appealing partners? In so doing, the mature bull helps make the rut



Although this is a huge rack, it misses the Boone and Crockett minimum by one inch. These antlers held by author John Vore score 374, and the minimum score for acceptance into the Boone and Crockett record book is 375. To give you an example of relative size, the world record is 442.

antler size and symmetry decline.

Socially, these elk may become hermits or outcasts. They lose the ability to participate in the rut because they no longer have the energy or stamina. They may enter the winter in better condition and live for a few years, but they are nearing the end.

Throughout his life a bull elk has an important part to play in the grand scheme of how elk populations function. Although populations devoid of older bulls may continue to survive, they aren't very healthy. Evolution has dictated that a smoothly operating, socially stable elk population must have its complement of older bulls. Wise elk management does

TOM WARREN

not ignore the patterns evolution produces. As issues surrounding elk management become more and more complex, it will take increasing courage and foresight to manage in the best interests of our precious elk resource.

less traumatic and energy-expensive for the cow. With few or no older bulls in a population, a cow may find herself surrounded by a bunch of erstwhile pubescents suddenly turned Don Juan Wanna Be's who really don't know much about this rutting business. Moreover, bugling among older bulls tends to synchronize estrus among cows leading to a shorter and, because older bulls feel the rut fever first, earlier birthing pulse in the spring. The result is healthier, more viable calves.

It is important to recognize that managing for older bulls in an elk population is not done solely in the interest of producing trophies—although that's a definite side benefit. Such animals are a thrill to see and hunt; for biological reasons, wise elk management strategy must include provisions for older bulls.

Mature bulls in a population also translate into more prudent use of energy and less stress during the rut among younger bulls as well. Because most cows are in harems tended by mature older bulls, younger bulls don't expend the tremendous amounts of energy required to be a fully active, primary rutting bull. This is not to say that younger bulls show no interest in the rut—indeed they do. However, they are usually found on the periphery—"satellite bulls" they're often called. Waiting. Watching. Learning. Hoping (if an elk can hope) for the chance to breed a cow. This requires far less energy, and the energy conserved is more wisely invested in growth toward the future when they will do the tending, the breeding, the fighting, and undergo the rigors of active rutting.

Elk are social animals. Unfortunately, management has paid scant attention to this fact. But the social well-being of a population is no small part of its overall health. It is important to appreciate bull elk and to understand that they are there for a reason—they are a very important part of elk society. Such animals, as magnificent as they are, are integral to the breath and pulse of a healthy population. Breath like that scintillating breath that sparkles as a fresh, January morning peeks into an azure mountain valley and an eager sun runs along a bull's antlers. ■

And make no mistake about how much energy it takes for a bull to actively rut. He carries on for perhaps weeks in a state of activity that leaves him absolutely exhausted. During the rut he expends the lion's share of fat reserves he has put on over the summer.

ELEVEN AND OLDER—OLD AGE

ABOUT BOONE AND CROCKETT RECORDS...

A bull past 11 years old is an old-timer. As mentioned earlier, fewer bulls than cows live to old age. It's unlikely that any bulls live past 15. In contrast, cows may survive to 20 or 25. In older bulls,

Minimum score for an elk to be entered in the Boone and Crockett record book is 375 points. An average mature elk scores about 300 to 325 points. This underscores the point that it takes a huge rack to make the record book, and such racks are rare.—John Vore

"HOME FOR THE BIGHORNS"

Mount Silcox Wildlife Management Area represents critical winter and spring habitat for bighorn sheep.

by BRUCE STERLING

When you think of hunting in Montana, visions of majestic bugling elk come to mind. But Montana also offers some of the best bighorn sheep hunting in the world—in places like the Sun River, Rock Creek, Petty Creek, and Thompson Falls.

The Department of Fish, Wildlife & Parks (FW&P) manages and protects the vast big game resources of the state so they'll be around for future generations to enjoy. One of the most important concepts in achieving this goal is protection and enhancement of critical habitat through conservation easements, lease, or fee title. Such is the case for one of the state's most recently acquired wildlife management areas.



BILL SWANSON

In January 1990, the department purchased Mount Silcox Wildlife Management Area (WMA) from Thompson Falls area ranchers Calvin and Judy Wilson with hunting license dollars. The Nature Conservancy also contributed to the project. The 1,552 acres represent critical winter and spring habitat for bighorn sheep as well as providing easy recreational access to a large section of the Lolo National Forest. The management area also furnishes quality winter and spring forage for elk and year-round habitat for mule and white-tailed deer and turkeys. In addition, the WMA supplies area educators with an ideal outdoor setting for classroom discussions and natural resource experiments.

LOCATED AT THE SOUTHERN END of the Cabinet Mountain Range in northwestern Montana, Mount Silcox WMA lies two miles east of Thompson Falls on State Highway 200. The wildlife management area is about 110 road miles southwest of Kalispell and 95 road miles northwest of Missoula.

Elevation varies from 2,450 to 4,000 feet. Topography ranges from flat grazing land, to rolling foothills with open grassland mixed with conifers, to steep, heavily timbered slopes and rugged rocky cliffs along the eastern boundary. Ashley Creek, the only perennial stream, meanders through the western third of the property.

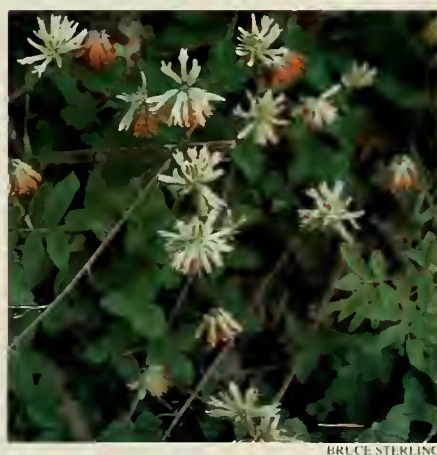
The Lolo National Forest adjoins the northern boundary of Mount Silcox. Private ranches surround the wildlife management area to the west and south. Champion International Corporation owns valuable wildlife habitat adjacent to the eastern boundary.

One goal at the management area is to improve the vegetation for use by both bighorn sheep and elk. To achieve this goal, WMA managers had to: (1) control an overabundance of noxious weeds, primarily spotted knapweed, (2) establish a restoration livestock grazing system, and (3) locate a water source for livestock, since FW&P has no water rights to Ashley Creek.

Biologists considered two techniques to control noxious weeds, chemical and biological. After discussion with experts, they chose chemical treatment for the flat grazing land because that method could quickly control spotted knapweed, thus rapidly improving the range for wildlife. This

method also answered the public's desire for FW&P to control noxious weeds immediately on the WMA. Managers will use biological control, along with natural plant succession, on the upland and coniferous portions of the WMA.

Crews applied herbicide on 72 acres of the WMA in June 1990, and they sprayed an additional 378 acres in July 1991. One drawback to the use of herbicide is the expense—cost at Mount Silcox was over \$8,200—but the benefits are immediate and impressive and grass production has increased tremendously. Timothy, valuable wildlife forage, grew as high as three feet in the wet spring of 1991 in spots where spotted knapweed had previously limited



The twin clover (Trifolium latifolium) growing at Mount Silcox WMA is the first reported sighting of this species in Montana.

its growth. Timothy also grew in some locations where the proliferation of knapweed had previously crowded it out.

With the noxious weeds controlled, the department could pursue the problem of lack of water for livestock use.

Negotiations with the water right holder to Ashley Creek are under way. The department seeks to purchase one acre-foot of water from Ashley Creek. A series of pipes would feed two or three water troughs from which livestock and wildlife could drink. Since wildlife are more mobile than cattle, they can obtain water from natural sources; but with several established water holes on the WMA, they may be attracted to those areas and stay longer.

In 1989, The Nature Conservancy con-

ducted a vegetation and flora survey of the WMA. Common native grasses in the foothills include Idaho fescue, rough fescue, and bluebunch wheatgrass—all important elk winter forage. While this was good news, the bad news was that there were almost no native grasses in the bottomland. Continuous grazing had contributed to a reduction in the amount of soil, loss of native grasses, and the invasion of exotic weeds and bluegrass species. Could this be reversed? Probably not, because of severe soil loss. But the increased grass production, coupled with a water source on the WMA, would allow the department to implement an effective livestock grazing system to benefit both elk and bighorn sheep.

A PROPERLY DESIGNED GRAZING SYSTEM can be a useful management tool since grazing stimulates vigor and productivity of grasses and thus benefits plant succession. The grazing system will assure the shorter grass preferred by bighorn sheep. It will also spread grass seed and improve germination through trampling and allow an area rancher to use available forage for his livestock. The grazing system will be designed to meet the needs of the plant communities on the WMA, resulting in better quality forage for wildlife.

Two rare plants, *Trifolium latifolium* (twin clover, a perennial) and *Clarkia rhomboidea* (common Clarkia, an annual and a member of the evening primrose family) have been found on the WMA. Neither is globally endangered, but the twin clover is the first reported in the state and common Clarkia has been reported from fewer than five sites statewide. Management activities such as weed spraying and grazing will be planned to prevent damage to these unique species.

What about the future? About 40 elk winter on the WMA, mostly in the western third of the property. About 70 bighorn sheep winter in the rocky areas along the eastern half of the WMA. Management goals to improve the amount and quality of forage will probably increase the number of both elk and bighorn sheep on the WMA. Realistic objectives in the next five years could see 60 to 70 elk and 100 to 110 bighorn sheep wintering at Mount Silcox. This affords both the hunter and the wildlife

viewer a better opportunity to pursue their recreational choices.

The WMA is closed to public use from December 1 through March 31 to provide wildlife a safe and secure place during the

harsh winters. Mount Silcox is open to restricted public use from April 1 through November 30. Travel is limited to foot, horseback, and mountain bike, and overnight camping is prohibited. Regulations

are posted at access points.

Come visit one of Montana's newest wildlife management areas and see what it has to offer. ■

The primary goal of Mount Silcox WMA is to provide winter and spring range for bighorn sheep, winter range for elk, and year-round habitat for white-tailed and mule deer and turkeys.

MOUNT SILCOX WILDLIFE MANAGEMENT AREA

Location: Sanders County, two miles east of Thompson Falls on State Highway 200.

Size: 1,552 acres.

Access: Parking area and horse loading ramp is available off State Highway 200.

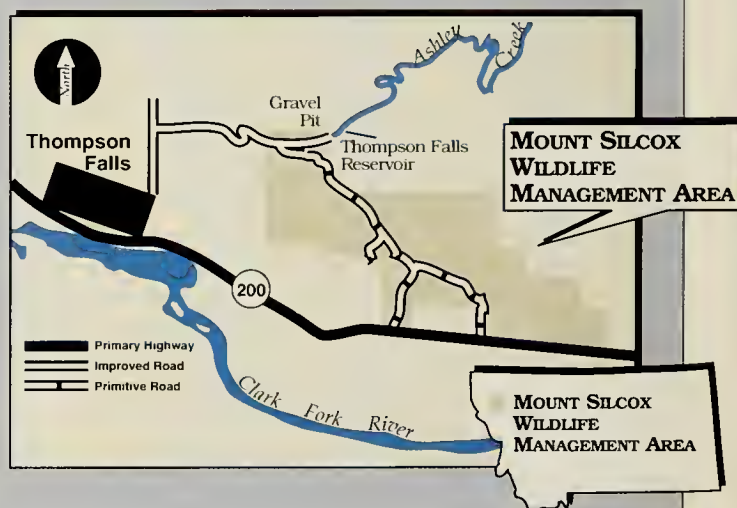
Management goals: To provide winter and spring range for bighorn sheep, to provide recreational access to adjacent public lands, to provide winter range for elk and year-round habitat for white-tailed and mule deer and turkeys.

Hunting opportunities: Archery opportunities for white-tailed and mule deer and black bears; limited archery elk hunting, but provides access to good elk country. Also general hunting season opportunities for elk, white-tailed and mule deer, black bears, and upland game birds. A special permit is required to hunt turkeys during spring and fall.

Wildlife viewing: Visitors occasionally see elk from the parking area which remains open all winter. Bighorn sheep are visible from late October through mid-April, primarily in the rocky cliffs along the eastern edge of the WMA. White-tailed and mule deer, black bears, and turkeys are best viewed during the spring, summer, and fall when the WMA is open to travel. Visitors occasionally spot mountain goats in the steep cliffs adjacent to the eastern boundary. Songbirds, woodpeckers, ospreys, owls, grouse, and an occasional coyote also frequent the WMA.



BILL SWANSON



DEPARTMENT TAKES HONORS IN INTERNATIONAL CONTEST

The Montana Department of Fish, Wildlife & Parks won two second-place awards in an international competition among state, federal, and Provincial natural resource agencies.

The Association for Conservation Information, Inc., an international organization for natural resource information and education professionals, awarded FW&P second place in the Magazine Article and Special Efforts categories of its annual competition.

The magazine article, "Madison Midsummer," a reminiscence of a family's fishing trip on the Madison River in the midst of the famed salmon fly hatch, was published in the May/June 1991 issue of *Montana Outdoors*. The article was written by Helena Information Officer Tom Palmer.

FW&P's September 1991 effort to promote the first Hunting Heritage Week took second place in ACI's Special Efforts category. The promotion was spearheaded by Palmer and others in the department's Conservation Education Division.

More than 325 entries from various states, federal agencies, and Canadian provinces competed for awards in 18 categories.

Montana Outdoors took fourth place in the overall magazine competition. With entries representing 21 different publications, the Wyoming Game and Fish Department's publication, *Wyoming Wildlife*, took first place.

DU HONORS GLASGOW BIOLOGISTS

Two Region Six (Glasgow) biologists, Al Rosgaard and Mark Sullivan, were presented Conservation Service Awards by Ducks Unlimited at the annual Montana waterfowl habitat meeting in Havre. The awards were presented for outstanding contributions to the conservation and preservation of North America's migratory waterfowl heritage.

Rosgaard has worked for the department for nearly 13 years. He has spent the last nine as the wildlife management



Al Rosgaard



Mark Sullivan

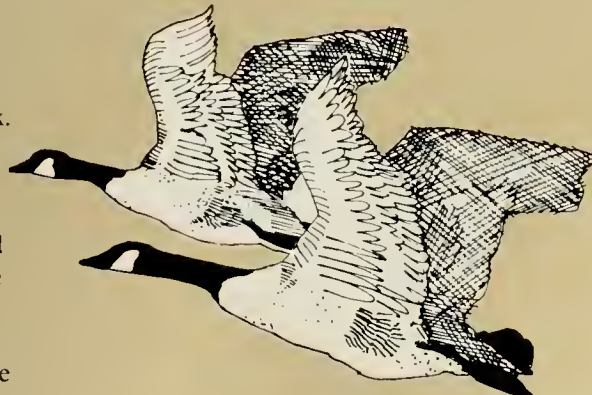
biologist in Havre. He is responsible for all wildlife management activities in 6,500 square miles of Region Six, including two wildlife management areas (WMAs).

Sullivan has worked for the department for five years. He has spent the last three as the Prairie Potholes Joint Venture (PPJV) waterfowl habitat enhancement biologist at Plentywood. The PPJV project is part of the North American Waterfowl Management Plan. Sullivan is responsible for essentially all waterfowl habitat enhancement work over approximately 3,500 square miles of Region Six.

The DU presentation noted Rosgaard and Sullivan have met their responsibilities as wildlife

biologists and dedicated public servants. They are frequently called upon when both landowners and sportsmen and women want to talk about "Fish 'n' Game." They attend many landowner and sportsmen and women meetings. Together, they talk to an average of 700 landowners and 450 sportsmen and women each year. In addition, they and their associates come into contact with at least 2,500 sportsmen and women, many of them landowners, at the Havre permanent check station each year.

Both have addressed their responsibilities with innovative ideas and applications as priorities have changed in the Glasgow region. They have effectively redirected time from a primarily benign role



of monitoring the ebb and flow of wildlife populations to the more important and pro-active role of enhancing wildlife habitat. They have accomplished this by aggressively applying the various habitat enhancement programs available in Montana. These include the Montana Upland Game Bird Enhancement Program, the Montana Duck Stamp Habitat Program, Ducks Unlimited programs, and the U.S. Fish and Wildlife Service Partners for Wildlife programs.

Habitat enhancement work in eastern Montana is particularly difficult since the potentially more productive land is privately owned. Each landowner is like a mini-land-managing agency all by himself. Everyone must be dealt with differently, and Rosgaard and Sullivan are particularly successful. Rosgaard has completed over 100 upland game bird and waterfowl enhancement projects with 89 different landowners during the last three years. Sullivan has completed 183 projects with 122 different landowners. These projects included dense nesting cover and native grass seedings on Conservation Reserve Program lands, shelterbelt plantings, drained wetland restorations, small reservoir repair, new reservoir construction, spreader dike construction, spillway repairs, water bank leases, dense nesting cover and native prairie leases, and rest-rotation grazing system implementation. In addition, Rosgaard has pioneered cooperative agreements with several local Conservation Districts. Under these agreements, the department buys equipment such as shelterbelt weeders, tree planters, and fabric mulchers through the Upland Game Bird Habitat Enhancement Program. The local districts schedule use of this equipment and take care of the maintenance.

Among their other contributions to the recreating public have been their efforts to maintain access to private land which makes up 80% of Rosgaard's area of responsibility and nearly 100% of Sullivan's. As a result of the trust developed through their countless landowner contacts, many sportsmen and women have benefited by enjoying varied outdoor opportunities uncomplicated by excessive regulations. Rosgaard has also made considerable progress

developing wildlife habitat on the Fresno and Rookery WMAs. Especially important is his implementation of rest-rotation grazing using privately owned cattle. This treatment will fully develop the native vegetation and protect the soil on the Fresno area. He has also entered into a cooperative agreement with the Hill County Weed Control District to aggressively control spotted knapweed on the Rookery WMA.

Rosgaard and Sullivan are both involved in the Montana Hunter Safety Program, and Rosgaard has been instrumental in maintaining the shooting facilities at Rookery WMA for the benefit of the shooting public. Both have been involved extensively in Ducks Unlimited functions to raise money for waterfowl habitat enhancement.

Their innovative and pro-active approaches to habitat development on private land have significantly enhanced the image of wildlife biologists. Their interactions with landowners and sportsmen and women have improved the department's image with the public. They have made a host of friends for the department who stand ready to assist on important issues and projects.—*Harold Wentland, Region Six (Glasgow) wildlife manager*

ELK PLAN AVAILABLE

Copies of a statewide elk management plan produced by the Department of Fish, Wildlife & Parks now are available.

The plan, which sets forth management guidelines for elk in Montana for the next five years, was produced by FW&P personnel with input from other agencies, as well as industry representatives (including timber and livestock) and other segments of the public (including recreationists, landowners, and outfitters).

In addition to outlining statewide management guidelines, the plan delineates specific management actions tailored to each of 35 local elk management units (EMUs), each representing one or several hunting districts.

Elk management objectives and strategies addressed in both the statewide and EMU portions of the plan include:

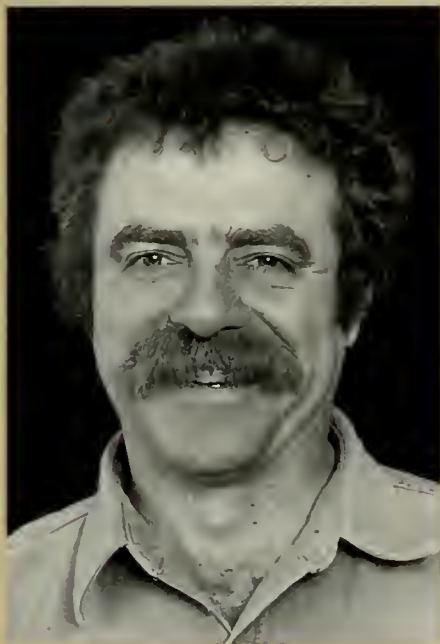
- habitat management priorities—seasonal habitat requirements, such as elk security and winter range, and habitat alterations including timber harvest and prescribed burning;
- elk population levels—elk numbers, distribution and age structure, and hunting season regulations;
- game damage—including landowner tolerance for elk use of private lands; and



- public access—status of land ownership and availability of recreational opportunity.

Other information in the plan of interest to recreationists includes availability of elk viewing and photography opportunities; numbers of elk harvested each year; and the various types of recreational opportunities (wilderness, backcountry, heavily roaded, etc.) provided within each EMU.

To obtain a copy of the plan, contact FW&P's Wildlife Division at 406/444-2612 or write them at 1420 East Sixth Avenue; Helena, MT 59620.



Joe Ball

BALL TO HEAD UM WILDLIFE RESEARCH UNIT

Joe Ball has been named leader of the Montana Cooperative Wildlife Research Unit, based at the University of Montana (UM).

He became leader September 7 after serving as acting leader since the end of June, when Bart O'Gara retired after heading the unit since 1978. Ball had been assistant leader since 1979.

His duties include conducting research, acting as a liaison between UM and federal and state agencies, advising graduate students, and obtaining and maintaining research equipment. In spring semester 1993, Ball will teach biological writing and a course on habitat

fragmentation and bird populations.

One of his current projects is evaluating the effects of habitat fragmentation and predator/prey imbalances on ground-nesting bird populations in Montana and south central Idaho. He also plays an active role in the Five Valleys Wetland Conservation Project, aimed at protecting, restoring, and improving western Montana wetland habitats.

Before starting work at UM, Ball taught at Washington State University and was a research officer at South Africa's University of Capetown. He has also been a National Institutes of Health research fellow at UM and a wildlife technician for the U.S. Fish and Wildlife Service's Northern Prairie Wildlife Research Center in Jamestown, North Dakota.

Ball holds three degrees in wildlife

biology; a doctorate and master's from the University of Minnesota and a bachelor's from Utah State University.—*University of Montana Office of Communications*



HOUNDSMEN DONATE TO MONTANA HOPE PROJECT

The Montana State Houndsmen Association (MSHA) recently donated \$800 to the Montana Hope Project. This project, run by the Montana Highway Patrol, grants wishes to critically ill children in Montana. The donation represents proceeds from a field trial conducted by the association in the spring. The Houndsmen also provided financial support to the Department of Fish, Wildlife & Parks last year for a mountain lion study in the Sun River area near Augusta. Pictured are Patrolman Ava May Johnston and Chuck Bell, secretary-treasurer of the MSHA.—Shawn Riley, Region One (Kalispell) wildlife biologist

MONTANA STATE PARKS CALENDAR

NOVEMBER
Eagle watch,
Canyon Ferry
State Park,
Riverside



Mid-November through mid-December, view the majestic bald eagles as they flock to this area to feed on spawning kokanee salmon.

BOOK REVIEWS

MONTANA TIME, The Seasons of a Trout Fisherman, by John Barsness, Lyons & Burford, Publishers, 31 West 21 Street, New York, NY 10010; 1992, 128 pages, hard cover, \$18.95, or from the author (640 East Highway 12; Townsend, MT 59644), signed and postpaid, \$20.

John Barsness lives just down the road from Helena in Townsend. I've never fished with him, but I've talked to him about fishing and I've been a rapt listener when he's told his tale to others. He talks a good game, and he writes a superb one. Even if you don't fly-fish (I've retired the title "eternal novice"), you'll enjoy this book. If you have affection for Montana, its seasons, and how those seasons are reflected in the offerings of its streams, rivers, and lakes, you'll really enjoy this book. It's an eclectic but tremendously pleasing stew: a little biology, some fishy folklore, a dash of philosophy, a sprinkling of personal anecdotes, and even a practical what-fly-to-use primer.

Among other places, Barsness previously lived in Missoula and Hobson and he knows of what he writes. If you read magazines, you've seen his byline in *Sports Illustrated* and in *Field & Stream*, where he carries masthead note as "contributing editor." His stuff has even appeared in our pages. The words shine: "And so I live by the rivers, putting lodgepole on the fire in winter and trying to catch trout whenever the water shows itself between layers of ice. And some time in spring—usually in late March or April, but occasionally in February—the chinook winds come from the southwest, the 'snow-eater' winds that rise up over the mountains and then gain speed as they fall down the eastern slopes, warming as they fall. Sometimes they blow for a day or two, sometimes for most of a week, but always there's a morning when the smell of last fall's cured grass and this day's wet earth mix with the wind, and you feel the time.... You must live here through the winter to feel the morning when you can, once again, catch a cold trout."

The following section ends a chapter tantalizingly titled, "A Trout Stream Named Desire": "...After cleaning the

trout and placing them head to tail in the creel, I lifted my own head, like a bear's. It smelled like winter. To the southwest were hard gray clouds, tight above the mountains. Tomorrow they'd cover most of the sky. Tomorrow, like bears, we'd leave the stream alone. That is what winters are for."

The "blurb" the publisher sent along with the review copy also highlights one of my favorite sections of the book. It summarizes what I know of John Barsness and what he knows of Montana and its waters: "The river will always run there, on the border of my life, full of the last good fish. There is fly fishing for trout, and then there is everything else."

Before winter settles in, head for the nearest book store and buy a copy. You'll get more than change back for your \$20 bill.—*Kay Morton Ellerhoff*

THE ROCKY MONTANA BERRY BOOK, by Bob Krumm, Falcon Press Publishing Co., Inc., P.O. Box 1718, Helena, MT 59624; 1991, 162 pages, soft cover, \$9.95.

I can't say it's *the definitive* work on Montana's berries, but I *can* emphasize its completeness. Bob Krumm's berry book combines the most important parts of the berry ID guides, cookbooks, and "where to" tomes I've seen elsewhere.

Here's what he's done: First, he warns you about the hazards of berry picking—things like bears, rattlesnakes, poisonous berries, yellow jackets, etc. Armed with that, you're ready to find some berries. Each section begins with a detailed description of the berry, along with some personal reminiscence or anecdote about it. He tells you what kind of country the berry frequents. He also warns about look-alikes, and a center color section clears up any doubts you might have. He writes about some berries you'd expect to find in such a book—chokecherry, huckleberry, elderberry—but he includes some less common subjects such as buffaloberry, hawthorn, low bush blueberry, and wild grape.

Each section ends with recipes, and he delves into some tempting dishes that go way beyond jam, jelly, and pie. For example, how about a wild chokecherry

daiquiri? Or wild gooseberry dumplings? Or huckleberry bon bons?

Krumm is a long-time berry picker, outdoor enthusiast, and columnist for the Billings Gazette; his articles have appeared in *Rod and Reel* and *Fly Fisherman*. I found his format and writing style both engaging and concise. His words made me think of my own huckleberry jam oozing down the side of an English muffin; even on a January day, it's August and I'm back on a steep hillside outside Bigfork, berry bucket strapped to my belt. He ends his introduction with something to think about: "You may discover that some of your most rewarding days spent out-of-doors were when you picked buckets of berries and made them into your own taste treats." Amen.—*Kay Morton Ellerhoff*

LITTLE FRIENDS, by Mike Logan, Buglin' Bull Press, 32 S. Howie, Helena, MT 59601; 1992, \$7.95 soft cover, plus \$1.50 postage.

In this delightful children's book, Mike Logan combines his poetic and photographic talents to describe 12 small mammals and their habitats. The mammals—some commonly seen, like the chipmunk, and some less so, like the pika—all live in Montana and nearby western states. The verses are meant to be read aloud, and kids will have fun memorizing them. Here are a couple of my favorites:

The PIKA lives high on the mountain,
Where it snows every month of the year.
He cuts flowers and grass to make the hay
He'll eat when winter is here.

The MARMOT lives up near the PIKA,
Where the clouds often shadow the peak.
He poses so much like a little old man
You almost expect him to speak.

Other animals featured include the beaver, pine squirrel, jackrabbit, weasel, prairie dog, snowshoe hare, cottontail, mantled ground squirrel, and Columbian ground squirrel. Children will learn something about each animal's habitat from the clever verses, and readers of all ages will marvel at Mike Logan's superb photography.—*Dave Books*

PERSPECTIVES



"THE INHERITANCE"

by William Ross Dickgraber

MICHAEL MAURO

Hanging by the hocks on our screened-in porch was the biggest mule deer buck I would ever see in my life. For several days, while the other kids ate their lunches at school, I'd slip down the hill to come home and eat my sandwich while admiring that huge buck.

I was only a 6-year-old boy and that impressive muley was really only a small forkhorn, but it triggered something inside me like lifting the lid on an antique music box. Yes, a Pied Piper tune had blown in. From the ghosts in the jack pines where antlers bleached in the snows, it had come to possess me.

Forty years have passed since that forkhorn hung on our porch; over 20 years since I have spent more than a few months at a stretch in Montana; over 13 since I moved to Florida. But not too long ago, I had the shakes again, complete with butterfly stomach. I was in a travel agency asking about rates to go back "home"—it was only June, but already the "fits" had begun. Distance means nothing. I can be 3,000 miles away from the shimmer of quaking aspen leaves, rimrock ridges breaking away into canyons roaring with rivers, and go into shakes. Time means nothing either. It can be months from buck rubs and snow devils churning up the Continental Divide and I break out with the fever.

At times, I wonder if it is a blessing or a curse. Other people live busy, contented lives and do very well without this "call of the wild." My father was such a one, but then there was my mother's side of the family.

GRAMPA ROSS DID EVERYTHING from carpentry to placer gold mining to barbering. He lived the lives of two or three productive men, but he heard only one tune. In 10 minutes, he could turn every conversation to his passion: mule deer hunting. He was only 5 feet 7, yet he left his tracks on the high ridges where the wind blows the snow away.

Granny had that same flavor. As a child she would stand outside on a star-studded night and call the wolves up to the ranch house. She passed this oneness with the wild on to my mother.

I remember an October afternoon when I watched Mom walk

among a small herd of deer, softly coaxing them with her gentle whistle. One of the does got wind of me a hundred yards away and the herd melted into the pines. Dad said Mom was so much a part of the woods that the deer never feared her.

Uncle Ross had rheumatic fever when he was a child and a heart attack when he was a young man. These problems didn't slow him up; every year he'd have a fat trophy hanging in

Granny's cottonwood. The last time I was in Montana, Granny and Uncle Ross took me out to one of his special places. There we were—the three generations of us, reaching across more than 50 years of hunting. I sat and soaked in that fact as we laughed, drank coffee, and talked. No meat from that hunt, but one of the best in my life.

That same week of November, my brothers took me for a ride to one of their favorite spots. On the way we passed a lake full of wild swans, looking almost exactly like 500 carved pieces of soap adrift on a dappled surface. From one point, we could see two herds of elk, a couple of mule deer bucks fighting, and four white-tailed bucks feeding along behind us. It was snowing hard—those

great big, slow-falling flakes—while behind us the river bellowed through the canyon.

NO SNOW DEVILS DANCE down our palm-lined street, and it concerned me how to pass all of this along to my sons. Would their heritage, this love of the wild, be lost?

Hanging across from our loft is a half-finished chandelier made of three sets of five-point muley antlers. One I shot with a blizzard settling in on the last Saturday of the season up Deep Creek; the second off the rimrock after a bad storm on the Dearborn. The third, the one with the pencil-sized bullet hole where a brow tine should be, I took on a backpack hunt in the Sun River country. Well, today I looked through the doorway just in time to see one of my sons reach up and very gently spin those antlers around.

He watched the antlers.

I watched him.

And the Pied Piper began to play to another generation. ■

"From one point, we could see two herds of elk, a couple of mule deer bucks fighting, and four white-tailed bucks feeding along behind us."

TWO FOR THE LAND

by TOM PALMER



RICHARD MOUSEL

THE UPLAND GAME BIRD HABITAT ENHANCEMENT PROGRAM— *Something for Everyone*

The Upland Game Bird Habitat Enhancement Program began in 1987, when the Montana Legislature enacted a bill to provide funds for raising and releasing ring-necked pheasants to the wild. Two years later, the Legislature amended the law to allow the Department of Fish, Wildlife & Parks (FW&P) to use some funds to improve habitat for all species of upland game birds.

Since 1989, more than 300 private landowners have developed cooperative habitat projects with FW&P (see table), and additional agreements have been struck with more than a dozen county conservation districts to plant and maintain shelterbelts, a critical component of upland bird winter cover.



CHARLES B. PLACE, III

Shelterbelt plantings provide critical winter cover for upland game birds.

These two components of the Upland Game Bird Habitat Enhancement Program have resulted in the development of more than 135,000 acres of habitat for upland game birds and other Montana wildlife.

"There is a lot of opportunity out there, and there are a lot of private landowners who are interested in trying to make their operations more productive for the long term," says Tom Hinz, who coordinates the program for FW&P. "They can look at the land and see where improvements can be made and we can help them make those improvements."

The habitat projects provide places for pheasants, grouse, and Hungarian partridge to breed, nest, raise young, roost, and winter. But the improved habitats also help to



AL ROSGAARD

DUANE SARGENT FARMER/RANCHER HAVRE, MONTANA SHELTERBELT AND NESTING COVER ESTABLISHMENT

In 1990, Duane Sargent entered a 15-year agreement with FW&P to establish and maintain an 11-acre shelterbelt designed to provide food and winter cover for pheasants, sharp-tailed grouse, and Hungarian partridge. FW&P provided buffaloberry, Russian olive, chokecherry, and caragana trees and Sargent planted them in five rows. Despite the drought, the trees are surviving.

In 1992, Sargent agreed to seed 233 acres of Conservation Reserve Program land with wheatgrass and alfalfa to provide nesting cover for pheasants, sharp-tailed grouse, and Hungarian partridge. The seed and planting costs were shared by FW&P and the Agricultural Stabilization & Conservation Service. The grasses have grown tall and are already providing dense cover for not only the targeted upland game birds, but also for several species of songbirds.

"I realize this benefits my cattle-ranching operation while it also improves wildlife habitat," Sargent said. "I also get a lot of satisfaction in providing hunters with a place to hunt upland game birds. They've been real cooperative in policing themselves."

conserve soil and water—the cornerstones for maintaining all wildlife populations.

Because soil and water conservation are so important, the involvement of county

conservation districts—as well as individual agricultural producers—has been critical to the program's success. Producers may indeed realize an immediate financial ben-

efit from having program funds spent on their property, but, in the long run, they and all Montanans will benefit from the good land stewardship the projects help foster.

"This is a first step toward the long-term maintenance of the land," Hinz says. "We're helping to put in shelterbelts, food belts, and establish grazing patterns. This isn't just for upland game birds. It's helping to heal the land for the landowner, and it's evolving into a program for all manner of wildlife."

Consider the variety of wildlife that benefits. Beyond providing places for upland game birds to live, many other wildlife species such as deer, antelope, ducks, nongame birds, and small mammals will benefit from these habitat partnerships.

Because the program's funding is derived solely from bird hunting licenses, public hunting is provided with landowner permission on project areas. Project areas also provide places to run hunting dogs, photograph and observe wildlife, and to just get away to a quiet spot to enjoy natural surroundings.

The Upland Game Bird Habitat Enhancement Program really offers something for everyone in Montana. It will help Montana stay Montana by maintaining open spaces, by helping landowners invest in rewarding land-stewardship projects, and by providing a place for Montanans to enjoy and better understand the vital role agriculture plays in the survival of wildlife.

THE MONTANA WATERFOWL STAMP PROGRAM— *Not Just for Ducks*

The Montana Waterfowl Stamp Program began in 1986. Since then, to be properly licensed to hunt waterfowl in Montana, hunters have been required to annually purchase the colorful \$5 stamp.

The sale of associated artwork and stamps to waterfowl hunters and collectors has generated funds for wetland-enhancement work across Montana.

"In a semi-arid state like Montana, wetlands provide dynamic and diverse habitats for a wide range of wildlife species," says Jeff Herbert, FW&P statewide waterfowl coordinator. "Yet, wetlands are also important to livestock operators, especially in a

dry year like 1992."

While it is true Montana's wetland-enhancement activities are primarily aimed at increasing waterfowl production and other wildlife uses—construction activities have included plugging drained wetlands, repairing dikes or spillways, constructing new ponds, building islands, and cutting off peninsulas—much work has been done beyond the wetland to improve adjacent upland areas.

Herbert says wetlands serve an important role in flood control, improved water quality, and ground water recharge. "Most of our projects focus on wetland restoration

and development, and on enhancement of adjacent upland acres," Herbert says.

Don't become confused. Waterfowl need healthy grasslands almost as much as good wetlands. Wetlands surrounded by grasslands or sagebrush and grassland pastures in good condition can actually produce dramatic increases in local waterfowl populations.

How? Adjacent grassland areas provide attractive nesting cover for breeding ducks and other birds. Work on uplands includes providing funds for the purchase and planting of desirable grass seed mixtures on acreage enrolled in the national Conserva-



BEN O WILLIAMS

tion Reserve and Water Bank programs. FW&P also works with private landowners to help install rest-rotation grazing systems that not only produce good nesting cover, but also enhance the long-term productivity of pasture land.

Sometimes even good wetlands need help to produce more waterfowl, so some funds have been spent for materials to build artificial nest structures that can be erected in existing ponds. These projects usually target Canada geese, mallards, and wood ducks.

It used to be that the most significant waterfowl enhancement projects were developed in Canada, or in the Dakotas—the great “duck factories” of North America. But today, Montana—as arid as it is—is recognized as a state of particularly vital importance to breeding and migrating waterfowl. The state’s wetlands can contribute to waterfowl production throughout the flyways.

In fact, Montana’s promise is so great that the Colorado Duck Stamp Program and Colorado Ducks Unlimited recently contributed \$50,000 for habitat work in north central Montana. These funds will be matched with funds from the Montana Waterfowl Stamp Program, Ducks Unlimited, and the U.S. Fish and Wildlife Service to accomplish far more than FW&P could accomplish alone.

Montana’s duck stamps aren’t just for ducks. And they’re not just for duck hunters. They’re for people who love wildlife,

people like you, wherever you may live.

With continued support this important habitat program will make a difference. With continued support, work on private

and public wetlands will continue to benefit wildlife. With continued support, Montana’s Waterfowl Stamp Program will help Montana stay Montana. ■

DENNIS “PONCHO” McCoy STOCKMAN DILLON, MONTANA WETLAND ENHANCEMENT

DAVE BOOKS



In 1991, Poncho McCoy developed six small ponds along a series of spring creeks. Duck- and goose-nest structures were placed in selected areas. Last spring, the ponds attracted five successful nesting mallard pairs. A successful pair of nesting geese managed to fledge eight goslings from the new wetland.

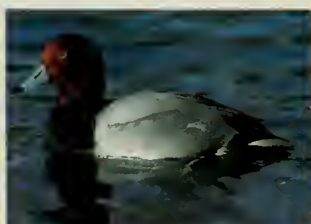
To build the ponds, McCoy entered a cost-share agreement with FW&P for labor and construction, while the local Soil Conservation Service provided much of the technical design. Dirt excavated during pond construction was used to fill and smooth nearby “bumpy” ground. The area will be seeded to tall wheatgrass and is used as a calving area for McCoy’s cows.

“It has worked well enough that we’re going to build two more ponds,” McCoy said. “It doesn’t hamper the cattle operation at all and it has definitely enhanced the total feel of the whole ranch.”

THE UPLAND GAME BIRD HABITAT ENHANCEMENT PROGRAM 1989-1992

REGION	NUMBER OF CONTRACTS	FUNDS SPENT BY REGION	Practice	Number Of Acres Enhanced	Wildlife Benefits	Benefits to Wildlife Users and Landowners
1	6	\$ 11,000	Shelterbelt installation, renovation, and maintenance	5,260	•Winter cover and food source for pheasants, sharp-tailed grouse, and Hungarian partridge	•Excellent sites for hunting upland birds, especially pheasants, sharp-tailed grouse, and Hungarian partridge •Opportunities to observe or photograph many bird species
2	20	\$ 21,000			•Winter cover and food source for passerine birds and small mammals	
4	68	\$149,000			•Nesting cover for Hungarian partridge	
5	28	\$ 72,000			•Nesting cover for passerine birds like robins, mourning doves, brown thrushes, and loggerhead shrikes	
6	213	\$558,000	Winter food plots	9,640	•Winter food for pheasants, sharp-tailed grouse, and Hungarian partridge	•Hunting opportunities for pheasants, grouse, and partridge •Excellent areas for viewing, photographing, and studying deer, upland game birds, passerine birds, and small mammals
7	31	\$119,000			•Winter food for deer, small mammals, Canada geese, and mallards •Winter food for passerine birds •Nesting cover for pheasants, Hungarian partridge, and passerine birds	
Statewide	366	\$930,000	Nesting cover establishment	60,532	•Nesting cover for pheasants, partridge, and grouse •Cover and food for deer, antelope, and small mammals •Nesting cover for meadowlarks, lark buntings, mourning doves, sparrows, and other passerine birds •Winter cover for pheasants, grouse, partridge, passerine birds, rabbits, rodents, deer, and antelope	•Attractive places for hunting and photographing wildlife and enjoying the abundance of vegetation and wildlife •Improved soil and water conservation that preserves beauty and wildlife habitat values
 <i>Hungarian partridge</i> RICHARD MOUSEL			Range management improvements	87,946	•Improved cover for grouse, partridge, longspurs and other passerine birds •Improved winter cover for pheasants, grouse, partridge, small mammals, and passerine birds •Improved plant diversity to favor a variety of wildlife species •Maintenance of soil and water to improve overall wildlife habitat	•Increased vegetative cover and enhanced range condition that provides better areas for hunting and observing, studying, photographing, and otherwise enjoying wildlife
			Wetland restoration	28	•Improved winter cover for pheasants and sharp-tailed grouse •Erosion control to conserve soil and water, thus enhancing wildlife habitat •Improved winter cover for passerine birds and small mammals	•Wildlife oases that provide excellent wildlife viewing, photography, and hunting opportunities and increased diversity of wildlife and plants
			TOTAL	163,406		

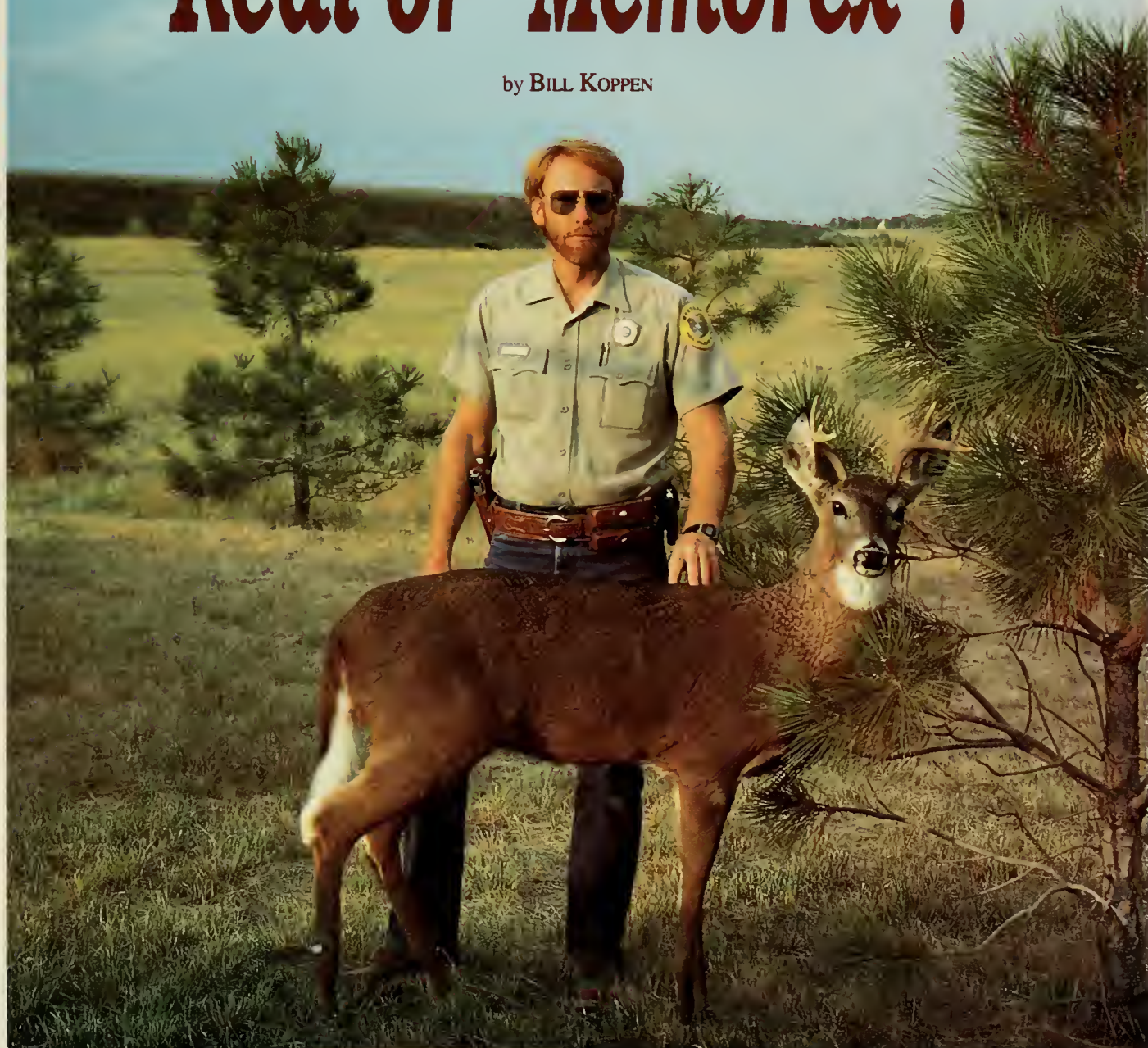
THE MONTANA WATERFOWL STAMP PROGRAM 1992

REGION	NUMBER OF CONTRACTS	FUNDS SPENT BY REGION	Practice	Number Of Acres Enhanced	Wildlife Benefits	Benefits to Wildlife Users and Landowners
1	3	\$ 17,250	Wetland restoration, construction, enhancement	218	•Breeding and brood-rearing habitat for ducks and geese	•Increased recreational opportunities for hunting and bird-watching •Improved water distribution for livestock grazing •Increased wetland functional values including flood control, groundwater recharge, nutrient traps, and food chain support •Increased aesthetic values
2	3	\$ 7,500			•Breeding and migration habitat for shorebirds and other water-related species	
3	5	\$ 19,321			•Increased habitat diversity for many nongame species and aquatic furbearers	
4	6	\$ 27,100			•Winter cover for pheasants, partridge, and grouse	
5	4	\$ 39,900				
6	17	\$135,545	Island construction	3.5	•Secure (predator-free) nesting sites for waterfowl, shorebirds, plovers, and terns	•Locations for hunting, bird-watching, and educational programs •Economic incentives to landowners for island construction •Aesthetic values and diversity
7	2	\$ 8,000			•Safe areas for waterfowl and other species to loaf and relax	
8	1	\$ 25,000				
Statewide	41	\$279,616	Nesting cover establishment	6,747	•Desirable grass/legume seed mixes that provide valuable nesting cover for upland-nesting waterfowl like mallards and pintails •Attractive nesting and brood-rearing cover for upland game birds •Cover for ground-nesting nongame bird species •Cover and food for mule deer, white-tailed deer, antelope, and small mammals •Increased productivity of adjacent wetland complexes	•Stands of native and introduced grasses that offer sites for hunting and observing wildlife •Marginal cropland seeded into permanent cover that reduces soil erosion and improves water quality in adjacent wetlands •Lease payments that provide economic incentives to landowners to establish and maintain good wildlife habitat •Permanent cover that can be used for pasture or hayland at the end of CRP or water bank contracts
(Because of construction schedules, some overlap between years now occurs. Total expenditures to date for program are approximately \$900,000.)  <i>Redhead drake</i> RICHARD MOUSEL			Artificial nest structure program	150 goose platforms, 42 nesting culverts, and 100 wood duck boxes	•Increased production of Canada geese, mallards, wood ducks, hooded mergansers, and goldeneyes •Nest sites for nongame bird species and flying squirrels (wood duck boxes)	•Opportunity for clubs, school groups, scout troops, and individuals to participate in the program by installing and maintaining structures and monitoring waterfowl use
			TOTAL	6,968.5		

• This report summarizes project activities during the last year. FW&P will annually update this information. FW&P has been able to stretch supporters' dollars by cooperating with a variety of agencies and private groups on habitat enhancement projects. Almost one-half of the projects undertaken in 1991 involved cost sharing with the U.S. Fish and Wildlife Service's Partners in Wildlife Program. All cooperative projects with the U.S. Fish and Wildlife Service were completed on private land. FW&P routinely works with Ducks Unlimited on a number of projects involving its U.S. Habitat and MARSH programs.—Ed.

Real or 'Memorex'?

by BILL KOPPEN



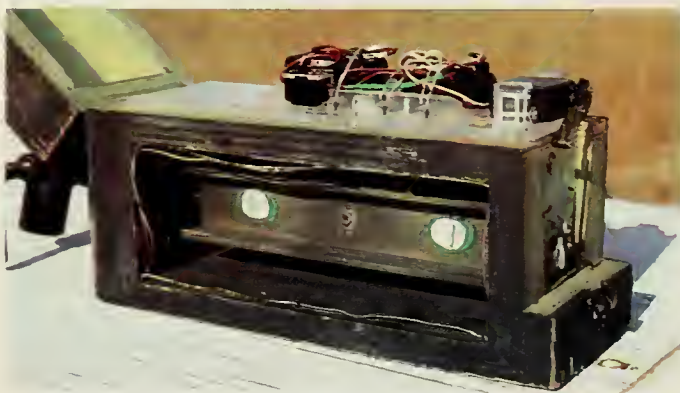
Getting caught shooting a fake critter when you're doing something you're not supposed to do can cost you some money. On July 1, 1991, a law went into effect making it illegal for a person to discharge a firearm or other hunting implement at simulated wildlife in violation of any state law regulating the hunting or taking of the wildlife being simulated.

Some of the things you're not supposed to do include: shooting at night, shooting from a vehicle or road, hunting (poaching) during a closed season, trespassing, taking more than your limit, using someone else's license, hunting without a license, etc. Under the new law, the penalty for attempting to take simulated wildlife (decoys) is the same as prescribed for the unlawful taking of real, live animals—and this is the most important feature of Montana's law. It negates the old argument that the hunter knew he was shooting at a fake animal, but just wanted to see what his gun would do. This has

BILL KOPPEN



DALE GRAFF



DALE GRAFF

A variety of electronic devices are used in conjunction with decoys to simulate wildlife and help wardens nab poachers.

been a popular defense in other states.

When it comes to using decoys, Montana may be a little behind the times, but the state's law enforcement officers are catching up fast. About 38 other states use a simulation program, but none have a statute as effective as Montana's.

In the past, the problem has been the difficulty of putting the poacher, the wildlife, and the game warden in the same place at the

same time. Wardens have spent countless nights sitting in fields waiting for someone to come by and shoot a deer in front of them. Even in areas where spotlighting occurs regularly, it is a real long shot for the warden to pick the precise spot and time where someone is going to shoot a deer. Thanks to deer and elk decoys with names like "Servo," "Smokey," "Bomber," "Terminator," "Eliminator," "Buster," "Wapittome," and "Bambo," that job is much easier. Wardens will no longer have to spend the night in their trucks watching spotlighters shine the field in front of them—only to discover there aren't any deer there.

The real advantage of the decoy program is that it allows would-be poachers to pursue their hobby under a game warden's scrutiny. The Law Enforcement Division will use wildlife simulations to help save money and time. The simulation program offers the added advantage that Montana will not have to lose wildlife to catch violators. Just the idea that the elk out there in the hills might be "real" or it might be "Memorex" (Montana's six-point simulated bull elk) should cause a few people to think twice before they pull the trigger.

BY NOW, YOU MAY BE THINKING about entrapment. You might be saying to yourself, "This simulation business—it just isn't fair. Aren't the game wardens just enticing people to break the law with these fake critters out there in the hills?" The deer, elk, and bear are out there in the hills day and night with or

without this program. People are killing them illegally day and night with or without this program. Game wardens are not putting the idea into anyone's head to go out and illegally take wildlife. Ordinary people drive by wildlife all the time, and seeing a deer is not unusual. Most people who see game do not decide to shoot it unlawfully. If someone sees an animal and decides to shoot it unlawfully, it is entirely their decision and they should expect to face the consequences of that decision. The game wardens of Montana are only placing the simulated wildlife in the hills and fields. All the rest is up to the individual. What is really unfair is at 2 o'clock in the morning shooting a deer frozen in its tracks by a 300,000 candlepower spotlight.

In a 1979 decision concerning entrapment, a Nova Scotia judge ruled that no officer asked the violator to go out and shoot. The judge noted that the same crime would have taken place had a real deer been standing there in the field.

The safety of the public, conservation officer, and the violator are major concerns of game wardens because these operations always include the use of high-powered rifles, handguns, or bows. Simulated wildlife exercises frequently involve the added hazards of night shooting, quick shooting situations, the involvement of kids, shooting from vehicles and roads, and shooting around homes. For these reasons, wardens take great care when they plan their operation and select decoy sites. They plan the proper set-up and take-down of the decoys; they pay attention to officer position, vehicle travel, and landowner presence. Success of the simulated wildlife program hinges on safety.

Many types of decoys exist from which to choose. Montana has full-bodied lying and standing decoys, as well as those run by remote controls. Some of the decoys have movable heads, ears, and tails. Some drop down after being shot, while others have a pop-up warning flag system to stop the shooting. Some decoys have eyes that shine at night and look very much like the real McCoy. Montana wardens are working on turkeys, pheasants, eagles, bighorn sheep, grizzly bears, mountain goats, and antelope. The wardens in Region Seven received the Director's Award for Excellence for simulated wildlife work headed up by Capt. Bob Stordahl and Sgt. Mark Anderson.

Regions One, Four, and Six have also had some outstanding results. Great Falls wardens owe special thanks to Glen Mischke and Larry Dotson for their help in developing the electronics for some of the remote controls used in making the simulations seem lifelike. They contributed many hours of their own time to make the simulation program in Great Falls work. There are many other organizations and individuals around the state who have contributed time and money to adopt a decoy and help pay the construction costs. (If your organization or group would like to offer financial assistance by adopting a decoy, contact the local game warden at the Department of Fish, Wildlife & Parks office.)

One of the main values of the simulation program is its deterrent effect. After receiving much publicity, many would-be violators might think twice about getting that big elk with the use of a spotlight. Many people told the Great Falls law enforcement staff that the bear decoy we put out was ugly and not real looking. This was *before* we got our bear up and running. As the simulated wildlife program in Montana gets going full tilt, the benefits to wildlife protection will be unlimited. The program will help keep

the poacher guessing. With only 81 game wardens working the entire state of Montana, law enforcement officers have to keep 'em guessing.

GAME WARDENS STILL NEED THE HELP of the public in reporting wildlife violations. Only a small percentage of wildlife violations are reported. Without the eyes and ears of the public helping game wardens catch the bad guys, wildlife doesn't stand a chance. With the public's concern and sportsmen and women policing their own ranks and using the 1-800-TIPMONT number, we have a chance of stopping the poaching that's done just for kicks and profit.

Preventing wildlife violations is serious business, but as in all endeavors, there are some lighter moments. Perhaps wardens should log some of the more creative excuses we hear when someone is caught shooting at one of our decoys. Warden Steve Vinnedge and I were set up on a road up in the Little Belt Mountains with our decoy, "Servo II," in the brush. Before long, a truck came along with a man and a little boy inside. The man hit the brakes, bailed out of the truck, laid flat on the road, and started blasting. The little boy, about 4, slid over to the driver's side window and watched Dad go for it. Six shots later we got the father to put the rifle down and stop firing. Warden Vinnedge asked the man if he had permission to hunt on that property—he said no. The father was charged with hunting big game without permission and shooting from a public road. He was also asked why he did it. His reply was, "What do you expect me to do, get out and hunt? I can't. I'm baby-sitting. I can't leave the truck."

Region One wardens had a classic also. They had a decoy set up and ready to go when a night stalker came by. The stalker got out of his truck parked on the road, poked the rifle through the open window, and pointed it at the spotlighted deer. A first bust for the Region One decoy was about to take place—at least it looked that way. This poacher had the rifle set and was all ready to fire when a big red flag popped up in front of the deer. When approached, the poacher yelled that he was just looking at the deer through his scope and wasn't going to shoot. The case was gone. It seems that one of the wardens hit the wrong remote control and instead of twitching the tail, he activated the pop-up "Stop Shooting" flag. Back to the drawing board. After all, lots of people use a spotlight and their scopes to look at deer and elk at 1 in the morning.

Not to be outdone, Region Four wardens tried to top the Region One officers. We had two deer decoys set up one night and thought we were all ready. A vehicle's lights approached the deer. We saw the lights hit the deer, but we didn't hear any shots. They just drove off, never to be heard from—not quite! Fifteen minutes later we heard the Highway Patrol dispatch over the radio. The report stated that some guys out in a field were using decoys to spotlight deer. We received an exact description of our vehicles and location by the river. Needless to say, many of the folks with police scanners in the area loved that one. Simulated wildlife is here to stay. We need decoys to help get a handle on slob hunting and poaching for profit. With the help of everyone concerned about wildlife protection, the simulation program in Montana will be a huge success. Landowners, hunters, and the Department of Fish, Wildlife & Parks all need to work together to protect Montana's wildlife, and the decoy program provides a way we can do that. Together we can make Montana's rich wildlife heritage even richer. ■

CONTRIBUTORS

• You could consider "Bull Talk" a primer on the subject. For example, you learn that elk have been around a long time, probably at least a million and a half years. You also learn they are relative newcomers to the Western Hemisphere—they arrived via the Bering Land Bridge perhaps a quarter of a million years ago. And they've been in what is now Montana for between 70,000 and 120,000 years. **John Vore** also tells you about the changes in antlers, body size, and ecology as a bull elk grows from calf to old age. For example, a bull elk born in June begins to grow his first set of antlers a little before his first birthday. Most yearling bulls grow "spikes"—straight antlers without branches that average about 16 inches long. During his second year, a bull grows the branched antlers characteristic of the species and the main beams begin to sweep out to the sides and back. By age 3, an average bull sports his first set of six-point antlers, albeit usually small and spindly. By the time he's 4, a bull's antlers probably have their maximum number of points. As Vore emphasizes, throughout his life a bull elk "has an important part to play in the grand scheme of how elk populations function." Vore, a wildlife biologist, was a research assistant for the Elkhorn Mountains elk research project. For some "Bull Talk," turn to page 2.

• Mount Silcox is one of the state's most recently acquired wildlife management areas. It was purchased in January 1990 with license dollars and some assistance from The Nature Conservancy. The 1,552 acres offer critical winter and spring habitat for bighorn sheep—"Home for the Bighorns." The area also provides easy recreational access to quite a chunk of the Lolo National Forest. As **Bruce Sterling** writes, "The management area also furnishes quality winter and spring forage for elk and year-round habitat for mule and white-tailed deer and turkeys. In addition, [it] supplies area educators with an ideal outdoor setting for classroom discussions and natural resource experiments." Mount Silcox Wildlife Management Area also harbors two rare plants—twin clover (the first reported sighting in Montana) and common Clarkia (reported from fewer than five sites statewide). For a peek at the many opportunities this "Lands Legacy" offers, turn to

page 8. Sterling, a wildlife biologist in Thompson Falls, has been with the department for more than 10 years.

• To a 6-year-old boy, a big mule deer buck was the stuff of dreams. Some 40 years later and thousands of miles away, the mule deer buck and an annual trip to Montana were still the stuff of dreams. But how to share Montana and "The Inheritance" with his sons? **William Ross Dickgraber** tells it this way: "Distance means nothing. I can be 3,000 miles away from the shimmer of quaking aspen leaves, rimrock ridges breaking away into canyons roaring with rivers, and go into shakes. Time means nothing either. It can be months from buck rubs and snow devils churning up the Continental Divide and I break out with the fever." Dickgraber is a minister in Merritt Island, Florida. He notes, "Come November, I will be back 'home' like I try to be every year, photographing and enjoying both the wildlife and my family out there." Share his "Perspectives," beginning on page 15.

• "Getting caught shooting a fake critter when you're doing something you're not supposed to do can cost you some money." As **Bill Koppen** points out, some of the things you're not supposed to do include shooting at night, shooting from a vehicle or road, hunting out of season, trespassing, taking more than your limit, using someone else's license, hunting without a license, etc. Now here's the catch: Under a new law, the penalty for attempting to take simulated wildlife—decoys—is the same as prescribed for the unlawful taking of real, live animals. Wardens used to spend night after night sitting in fields waiting for someone to come by and shoot a deer in front of them. No more. Decoys with names like "Buster," "Bambo," and "Terminator" make it possible for the poacher, the wildlife, and game warden to be in the same place at the same time. With movable heads, ears, and tails and eyes that shine, you might have to ask yourself if the animal is "Real or 'Memorex'?" As Koppen emphasizes, one of the main values of the simulation program is its deterrent effect: Would-be violators might think twice about getting that big elk with the use of a spotlight. Koppen is a warden with the department's Law Enforcement Division in Region Four

(Great Falls). His article begins on page 21.

• Eagles, kokanee salmon, and several thousand enthusiastic observers have an "Autumn Rendezvous" at Hauser Lake near Helena. It used to be that eagles concentrated at McDonald Creek in Glacier National Park between October and December to feed on spawning kokanee salmon swimming upstream from Flathead Lake. But the Flathead kokanee population has collapsed, and the bald eagles now gather at Hauser. As writers **Marco Restani** and **Elizabeth Madden** point out, it requires some guesswork to figure out how the kokanee became established in the Hauser-Holter lakes system. The writers began a study in 1990 to learn more about eagles and kokanee. They are trying to answer some basic questions—such as, how many eagles congregate at Hauser Lake. How long do they stay? Which sections of the rivers are important for foraging and which for nocturnal roosting? Turn to page 31 for an in-depth look at this issue's "Watchable Wildlife" installment. Restani is a research associate in the Department of Biology at Montana State University; he is also a Ph.D. candidate in the Department of Biology at Utah State University. He has worked on raptors for the past six years, including two autumns at Hauser studying bald eagles. His co-author will be doing the eagle surveys at the Hauser concentration. She has worked as a wildlife technician in the Beaverhead National Forest, studying bald eagles for the 1989, 1990, and 1992 breeding seasons.

• *MO* thanks the following photographers and artists for their contributions to this issue: **Diane Ensign**, **Phil Farnes**, **Elizabeth Madden**, and **Marco Restani**, Bozeman; **Michael H. Francis**, Billings; **Mark McCollough**, Bangor, Maine; **Michael Mauro**, Arvada, Colorado; **Richard Mousel**, Fort Benton; **Charles B. Place, III**, Lolo; **Judith E. Strom**, Whitehall; **Bill Swanson** and **Barbara Thomas**, Kalispell; and **Ben O. Williams**, Livingston. Thanks also to the following contributors who work for the department: **Dale Graff**, **Craig Jourdonnais**, and **Tom Warren**, Helena; **Bill Koppen**, Great Falls; **Al Rosgaard**, Havre; and **Bruce Sterling**, Thompson Falls.

1992 MONTANA OUTDOORS INDEX

The major items published in *Montana Outdoors* in 1992 are indexed below. Extra copies of all '92 issues are available at \$2 each (includes postage). The following back issues are available at the same price:

1971—July/August, September/October

1972—July/August, September/October, November/December

1973—all issues, except March/April and May/June

1974—all issues

1975—all issues, except September/October

1976—all issues, except January/February

1977—all issues, including Yellowstone Special Issue

1978—all issues, including Special Parks Issue, except May/June

1979—all issues

1980—all issues, including Special Hunting Issue, except January/February and July/August

1981—all issues

1982—all issues, except May/June and November/December

1983—all issues

1984—all issues, except November/December

1985—all issues, except March/April

1986, 1987, 1988, and 1989—all issues

1990—all issues except July/August and September/October

1991—all issues

To inquire about or order a back issue, write: Back Issues, *Montana Outdoors*, Department of Fish, Wildlife & Parks, 930 Custer Avenue West, Helena, MT 59620.

BOOKS REVIEWED

Aldo Leopold's Wilderness: Selected Early Writings by the Author of a Sand County Almanac—edited by David E. Brown and Neil B. Carmony (March/April).

Bannack: Cradle of Montana—text and photography by F. Lee Graves (March/April).

Elk Country—by Dr. Valerius Geist, photography by Michael H. Francis (July/August).

Montana Time: The Seasons of a Trout Fisherman—by John Barsness (November/December).

The Rocky Mountain Berry Book—by Bob Krumm (November/December).

Little Friends—by Mike Logan (November/December).

FISH/FISHING/WATER

Thompson Chain of Lakes: A Link to

Natural Values—This impressive lake chain is renowned for its fishing—it includes more than 20 lakes and ponds (John Fraley, March/April).

Perspectives—"Caught by a Rainbow"—The moment of catching her first rainbow trout joins the author's collection of favorite memories (Cindy W. Vincent, May/June).

A World-Class Rainbow for Stan Ross—Montana's 1991 record rainbow was also certified as a world record by the Freshwater Fishing Hall of Fame (Kay Morton Ellerhoff, May/June).

Montana Moves Mountains for Wild Trout—State and federal governments moved part of a mountain to create a wild trout fishery in Wade Lake, a high-mountain lake in southwestern Montana (Tad Brooks, July/August).

Native on the Brink—The Montana Arctic grayling is among the ranks of glacial survivors still found in Montana (Patrick A. Byorth, July/August).

Fall for the Madison—Wading a trout-filled and crowd-free river decked out in its autumn splendor is matched by few outdoor experiences (Fred Nelson, September/October).

GAME/HUNTING

Fantastic Comeback of the American Wild Turkey—Wild turkeys now inhabit 49 states, and live-capture programs are responsible for the turkey's spectacular success in Montana and elsewhere (Ken Walcheck, The Catchall, March/April).

Montana to Host National Hunting Symposium in July—The nation's wildlife conservation leaders gathered to discuss the past and future of North America's wildlife conservation movement (The Catchall, May/June).

License Fees Increase—With the beginning of a new hunting and fishing license year, many of Montana's license fees increased (The Catchall, May/June).

Winning the War—For decades, anti-hunting groups have been looking for a hunting situation which would offend the sensibilities of the American public (Jim Heck, July/August).

Our Point of View—A newly established Montana Landowner/Sportsman Council will work to improve and maintain favorable relations and communications between the state's landowners and sportsmen and women (K.L. Cool, July/August).

Governor Names Co-Chairs for Landowner/Sportsman Council—Ron Stevens

of Bozeman and Chuck Rein of Big Timber were named co-chairs of the newly formed Landowner/Sportsman Council (Michael Kom, The Catchall, July/August).

New Law Opens State Lands to Hunting, Fishing—As the result of a bill passed by the 1991 Montana Legislature, about 5.2 million acres of state trust lands in Montana was officially opened to licensed hunting and fishing; however, certain restrictions apply (William Phippen, The Catchall, July/August).

Perspectives—"And Maybe Most of All...Memories"—Hunting with one's kids for the first time makes for memories that are hard to top (Ron Aasheim, September/October).

Bird Hunter's Autumn—Autumn colors and bird hunting go hand in hand (photo essay, Ben O. Williams, September/October).

Hunters Help Those in Need—A Townsend-based organization, Hunters Against Hunger, provided donated deer and elk meat to nearly 500 Montana families (Roberta Opel, The Catchall, September/October).

Bull Talk—From birth to old age, what does a bull elk look like? What's his role in elk society? (John Vore, November/December).

Perspectives—"The Inheritance"—Montana's "call of the wild" rang up and down Florida's palm-lined streets (William Ross Dickgraber, November/December).

Real or "Memorex"?—Simulated wildlife—decoys—with names like "Bomber," "Buster," "Bambo," and "Memorex" put the poacher, the wildlife, and the game warden in the same place at the same time (Bill Koppen, November/December).

The Subject Was Mule Deer—A photo essay features "North America's deer of scenic mountains and foothills" (photographs by Michael H. Francis, Craig Jourdonnais, Bill Swanson, and Tom Warren, November/December).

GENERAL

Special Photo Issue—(January/February).

Phillips' Wood Ducks Wins—A rendition of three wood ducks by Thompson Falls artist Craig Phillips will grace Montana's 1992 waterfowl stamp (William Phippen, March/April).

"Crossing the Barriers"—The Department of Fish, Wildlife & Parks has em-

barked on a new program that addresses the needs and rights of the agency's disabled constituents. With an accompanying story, "Milestone on the Bitterroot," by Deirdre Boggs (William Phippen, March/April).

Perspectives—"Spring Ahead"—As these photos and quotes suggest, spring in Montana is just around the bend (March/April).

Our Point of View—The Department of Fish, Wildlife & Parks is taking steps to ensure that its facilities and programs meet the needs of all of Montana's citizens (K.L. Cool, March/April).

Project WILD Earns National Award—Montana's Project WILD program received one of three 1991 President's Environment and Conservation Challenge Awards for Education and Communication (The Catchall, March/April).

Never Underestimate the Value of a Volunteer—The value of volunteers to Montana state parks cannot be overestimated (The Catchall, March/April).

Shelter from the Storm—Discover through Ben Gordon's eyes the department's vision for the future (Ben Gordon, May/June).

Our Point of View—There is increasing value of and competition for fish, wildlife, and parks resources; yet, there is certainly opportunity to enhance these resources (K.L. Cool, May/June).

Bivins Named "Wildlife Officer of the Year"—Tom Bivins, a warden for the department in Choteau, was named the 1991 recipient of the prestigious Shikar-Safari International's Wildlife Officer of the Year Award for Montana (The Catchall, July/August).

The Wildlife Society Honors Mike Thompson—Missoula wildlife biologist Mike Thompson was named Biologist of the Year by the Montana Chapter of The Wildlife Society (John Firebaugh, The Catchall, July/August).

"I Heard the Owl Call My Name"—A eulogy to Roger Fliger who was the supervisor of the department's regional office in Billings (Jim Posewitz, illustration by Dick Ellis, September/October).

Our Point of View—Life cycles are as much a part of this agency's existence as they are of the existence of the fish, the wildlife, and the habitat the agency manages (K.L. Cool, November/December).

Department Takes Honors in International Contest—The department won two second-place awards in a competition among state, federal, and Provincial natural resource agencies (The Catchall, November/December).

DU Honors Glasgow Biologists—Ducks Unlimited presented Conservation Service Awards to Al Rosgaard and Mark Sullivan (Harold Wentland, The Catchall, November/December).

PARKS/DEPARTMENT LANDS
Lands Legacy—"Beefing Up the Blackleaf"—Initial results of a grazing program on the Blackleaf Wildlife Management Area are encouraging and hold promise for future use of this valuable management tool (Gary Olson, March/April).

Lands Legacy—"The Gate to Heaven"—Various Indian tribes once considered the site of Lost Creek State Park near Anaconda as the gate to heaven (Lee Bastian, May/June).

Lands Legacy—"Yellowstone Rendezvous"—Elk Island and Seven Sisters Wildlife Management areas offer the chance to escape the soul-bruising press of modern life (Ken Walcheck, July/August).

A Celebration of Discovery—A celebration honored the discoverers of the Lewis and Clark Caverns (Bernie Kuntz, July/August).

Fifth Graders Draw on State Parks—A fifth grader at Eureka Elementary School won the first State Parks Poster Contest (Debbie Cheek, July/August).

Lands Legacy—"Waterfowl Skies Over Freezout"—If ever a wildlife management area could be synonymous with waterfowl, Freezout is that area (Bruce Auchly, September/October).

Lands Legacy—"Home for the Bighorns"—Among other attributes, Mount Silcox Wildlife Management Area provides important winter and spring habitat for bighorn sheep (Bruce Sterling, November/December).

WILDLIFE

Watchable Wildlife—"Mysterious Birds of the Far-Away North"—The eerie, high-pitched calls of snow geese drift down to us as they pass overhead, and we wonder where they've been and where they're headed (Dave Books, March/April).

The Ferret Experiment—As experiments with black-footed ferrets prove, endangered species recovery is a complex and difficult task (Rosalee Richardson, March/April).

Montana's Midget Mammal: The Shrew—It's not easy to study shrews; after all, their raging metabolism doesn't leave much time for contending with researchers (Deborah Richie, March/April).

Watchable Wildlife—"Avian Sling-shot"—The great blue heron watches. And it waits. And when a fish comes into striking distance, the heron's speed is astounding (Jim Keener, May/June).

Identification of Montana's Furbearing Mammals—A guide to help with identification of Montana's furbearing animals—nine official Montana furbearers for which annual harvest seasons are established, six predators, and two nongame species (Michael R. Frisina and Kurt L. Alt, illustrations by Robert Neaves, May/June).

Watchable Wildlife—"Underwater Flier"—The water ouzel—a plump, starling-sized denizen of western mountain streams—moves easily between land and water (Deborah Richie, July/August).

Perspectives—"Death at the Goat Lick"—Two photographers happen onto a dramatic scene involving a mountain lion and two goats in Glacier National Park (Jim Mephram, photos by Jim Mephram and Steve Torna, July/August).

Crane Bonanza—Whether in flight or standing, sandhill cranes are an impressive sight (Jeff Herbert, September/October).

The Bighorns That Broke All the Rules—Some biologists found it difficult to believe that any self-respecting Rocky Mountain bighorn sheep would migrate to the desertlike habitat in the Pryor Mountains of south central Montana, much less establish a growing herd (Kevin Coates, September/October).

Watchable Wildlife—"Meet the Rubber Boa"—Mention boa constrictors and most people don't think of Montana—but the state's forested mountains are indeed home to a member of the boa family (story and photos by Charles B. Place, III, September/October).

Our Point of View—The Endangered Species Act, as it is now written, restricts the states' ability to provide the resources they have available for species recovery (K.L. Cool, September/October).

Two for the Land—Two programs—the Upland Game Bird Habitat Enhancement Program and the Montana Waterfowl Stamp Program—hold great promise for improving habitat for all wildlife (Tom Palmer, November/December).

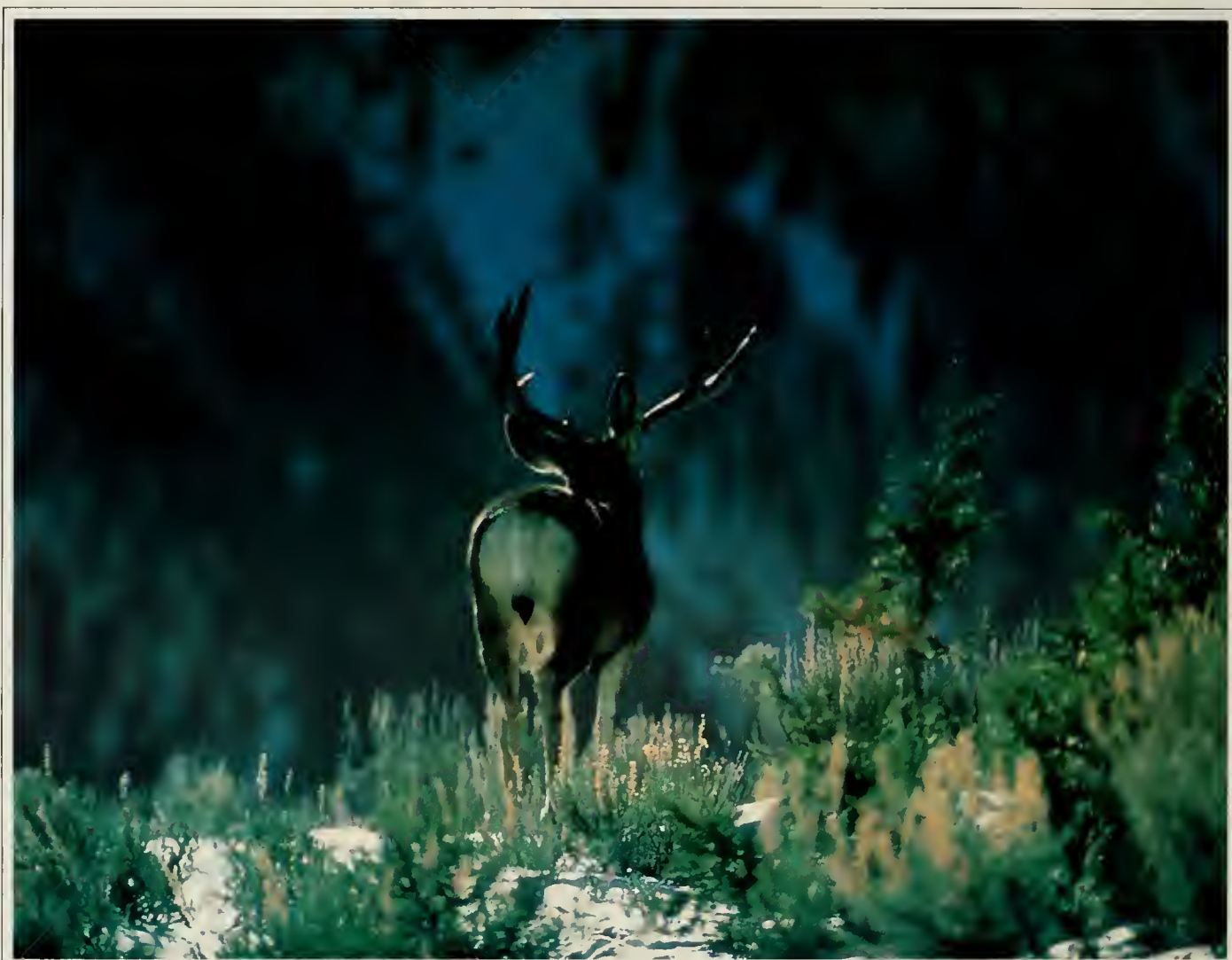
Watchable Wildlife—"Autumn Rendezvous"—Although the location has changed from McDonald Creek in Glacier National Park to Hauser Lake near Helena, the cast of characters remains the same: eagles and kokanee salmon (Marco Restani and Elizabeth Madden, November/December).

The Subject Was Mule Deer

"Whenever you decide to hunt trophy mule deer, remember that you're after one of the smartest big game animals in North America. Not long ago muleys were called 'stupid' and 'dumb,' but those days are gone forever. The big bucks that roam the West, the ones that carry magnificent antlers, are just as savvy as their whitetail counterparts. If you don't believe it, come see for yourself. There's lots of room under the big Western sky."

—Jim Zumbo, "Hunting America's Mule Deer"





JON JOURDONNAIS

"Buck mule deer that grow these exceptional heads are not stupid. When the hunting season is on they head for country that is not overrun with hunters and they lie up where it is almost impossible to approach them without being seen. Since they often bed down for the day just under rimrocks, these wise old bucks are often called 'rimrockers.' They are hard to get at. The hunter who tries to approach them from below is quickly seen. The buck will slip out, find a notch in the rimrock, and go over the top. The hunter who tries to approach these smart old bucks by hunting at their level around under the rim through the brush that usually grows there makes too much noise, and if he gets a shot at an old rimrocker it is usually a snap-shot at a vanishing rear end."

—Jack O'Connor, "The Art of Hunting Big Game"



TOM WARREN



MICHAEL H. FRANCIS

"There were plenty of mule deer that November and now the rut had begun, the time when big bucks, their necks heavy and their antler tips polished, come from the high rims and the far cedar pockets to assemble their harems of does and lose some of their caution.... The snow began some time during the night, hard-driven particles riding a wind from Idaho and coming down from the peaks into a Montana valley that was already sheathed in the beginnings of winter."

—Charles F. Waterman, "Mule Deer"
The Part I Remember



"He is North America's deer of scenic mountains and foothills, of forsaken, rugged badlands, of windswept, delicate prairies and harsh, desolate brushlands. Usually larger, more rugged and bulkier than the white-tailed deer of eastern forests, his large mule-like ears give rise to his common name, although he shares little other resemblance to his domestic namesake. He is the mule deer."

—Valerius Geist, "Mule Deer Country"



"A·U·T·U·M·N R E N D E Z V O U S"

by MARCO RESTANI AND ELIZABETH MADDEN



WATCHABLE WILDLIFE



MARCO RESTANI

Kokanee salmon attract bald eagles of all ages to Hauser Lake in autumn. Bald eagles take four to five years to acquire the white head and tail typical of adults.

Exactly 10 years ago, *Montana Outdoors* ran an article on an autumn concentration of bald eagles at McDonald Creek in Glacier National Park. Written by park biologist Riley McClelland, it described how hundreds of bald eagles congregated there between October and December to feed on spawning kokanee salmon swimming upstream from Flathead Lake. Ten years have come and gone, the Flathead kokanee population has collapsed, and the bald eagles no longer gather at McDonald Creek. However, for the past two autumns, a similar bald eagle gathering has taken place on Hauser Lake near Helena. Although the location has

changed, the cast of characters remains the same.

Kokanee, the landlocked form of sock-eye salmon, are not native to Montana waters. They were first introduced to the state in 1916 when they were planted in Flathead Lake. The population increased over the years and eventually was responsible for the eagle concentration in Glacier.

Determining how kokanee became established in the Hauser-Holter lake system requires some educated guesswork. Biologists stocked kokanee fry in Hauser Lake during the early 1950s, but the young fish were unable to establish a self-sustaining population. During the late 1960s, kokanee

were introduced into Canyon Ferry Reservoir. At some point some of the kokanee were siphoned into the Helena Valley Reservoir—a man-made lake that serves as part of the irrigation system in the Helena Valley. The kokanee survived there and eventually produced a good fishery. The Helena Valley Reservoir was drained for repairs in 1978, apparently spilling adult kokanee into Hauser Lake. Shortly afterward a viable kokanee population was detected in Hauser Lake. Since 1978, the kokanee population in Hauser has flourished, providing both resident and out-of-state anglers a rewarding fishery.

Not only have human anglers benefited

from the burgeoning salmon population, but so too have piscivorous (fish-eating) birds, bald eagles being the most conspicuous. Although a few bald eagles wintered on Hauser Lake before the kokanee population explosion, autumn migrants had never congregated in the numbers observed during the past two years. Bald eagles migrate through Montana in October and November, at the time when kokanee are spawning in shoreline gravel and sand. The kokanee, which die two to three weeks after spawning, act as a powerful magnet, attracting hundreds of eagles to feast.

BECAUSE WILDLIFE MANAGEMENT AGENCIES lacked data on which to base the decisions needed to protect the bald eagles gathered at Hauser Lake, we, along with Montana State University research professor Al Harmata, initiated studies in 1990 to learn more about eagles and kokanee. The Montana Power Company, Bureau of Land Management, U.S. Forest Service, Bureau of Reclamation, Montana Department of Fish, Wildlife & Parks, and U.S. Fish and Wildlife Service provided funding for the studies in cooperation with MSU and, more recently, Utah State University. We began by collecting baseline data on even the most general subjects. For example, how many eagles congregate at Hauser Lake? How long do they stay? Which sections of the river are important for foraging and which for nocturnal roosting? Recently, we began investigating the relationship between number of eagles at the concentration and number of salmon carcasses found on shore. We also are describing eagle feeding and roosting behavior and trying to determine the length of time individual eagles stay at the concentration.

Once a week we conduct a census by boat to count number of eagles on Hauser Lake. "Counts" represent minimum estimates, because we probably miss some eagles perched deep in trees or away from the river. The census route stretches from Riverside Campground to Hauser Dam. Three observers tally the number of eagles along the river and classify each as either adult (completely white head and tail) or subadult (all other plumages).

In 1990, we conducted weekly counts from late October to early December; the number of eagles gradually increased to a peak of 203 on December 4. After that,

eagle numbers declined quickly as salmon spawning ended and winter settled in.

Eagles arrived earlier in 1991, but numbers again peaked during the first week of December when over 300 were observed. This gathering, which took place primarily along the two river miles directly below Canyon Ferry Dam, possibly represented the densest concentration of bald eagles in the United States south of Alaska.

We also recorded the number of salmon carcasses on shore by Riverside Campground the morning of each eagle census. Because eagle numbers increased with the number of salmon carcasses (see Figure 1), it appears that kokanee control the size of the concentration. Annual fluctuations in the number of eagles congregating at Hauser will probably correlate with annual fluctuations in the number of kokanee spawners. By nature, kokanee salmon populations exhibit dramatic highs and lows, and if the kokanee at Hauser Lake crash or decline, so too will the eagle concentration.

Interestingly, the age composition of bald eagles gathered at Hauser Lake is significantly different from that once observed in Glacier National Park; Hauser attracts a much higher percentage of subadults compared with Glacier (74% vs.

34%). At this point it is difficult to interpret this age class information. Perhaps adult and subadult eagles use different migration corridors—that is, a higher percentage of adults flying south from Canada may prefer to follow the mountains in western Montana. Younger eagles may not be as traditional in their route finding. Or, maybe the continental bald eagle population has recently increased so that subadults now make up a larger proportion of the population than they did 10 years ago. The latter seems possible given the considerable increase in Montana's breeding population during the past 10 years.

THE QUESTIONS ASKED MOST OFTEN of research personnel at Hauser Lake are: "How many eagles are at the concentration?" "Where do the eagles come from?" "Where do the eagles go?" We surmise that most eagles congregating at Hauser come from northern Canada and probably winter as far south as Colorado or Utah, but exact locations of either breeding or wintering grounds are still unknown. Long-term banding studies (ours is in its third year) should help solve some of the mysteries of eagle migration and perhaps enable us to someday delineate migration routes.



MARCO RESTANI

Kokanee salmon, which die two to three weeks after spawning, attract hundreds of bald eagles to Hauser Lake each fall.

Leg banding has been helpful in determining the migration routes of some bird species. Birds are either banded in the nest before they can fly (legs of nestlings reach full adult size about two-thirds of the way through the nesting cycle) or are captured as free-flying individuals (we capture eagles each autumn at Hauser Lake). Each band, obtained by licensed researchers only from the U.S. Fish and Wildlife Service (USFWS), is inscribed with a unique number combination analogous to a social security number. After any bird is banded, the following information is sent to the USFWS Bird Banding Lab in Maryland: species and age of bird, date, location, and band number. All banding information is then stored in computers. If a banded bird is re-encountered (i.e., recaptured or found dead), the finder is asked to provide the band number to the Bird Banding Laboratory or a wildlife law enforcement official. The laboratory will send both the bander and the finder banding and recovery information.

Researchers with many band recoveries can then develop a series of mapped points that may ultimately lead to an understanding of migration routes. Unfortunately, because re-encounter rates are so low, it takes years to reap the benefits of banding efforts. The re-encounter rate—which is approximately 7% for large birds such as eagles—is lower for smaller birds, but higher for waterfowl.

In addition to the USFWS aluminum band, we fitted each eagle captured at Hauser with a colored band on the opposite leg. These bands (painted blue and silver) can be identified from a distance of up to 100 yards with a spotting scope. We are the only bald eagle researchers in the United States and Canada authorized to use blue/silver color bands; other researchers use different colors. Normally a banded bird needs to be

rehandled (e.g., captured or found dead) to read the band number necessary to determine its origin of banding. However, if an eagle with a blue/silver color band is observed, its point of banding can be determined even without knowing its specific USFWS band number.

Therefore, color bands increase the odds of obtaining re-sightings. For instance, we know that the eagles congregating at Hauser

there during migration.

MANY BIRD SPECIES THAT ARE TERRITORIAL during the nesting season will form flocks in autumn and winter, some even roosting together at night. Blackbirds and crows come to mind. Bald eagles also are territorial during the breeding season, but they roost communally at night at autumn and winter concentrations. The advantages

of communal roosting are unknown, but some researchers have suggested eagles roost together to exchange information on the location of productive foraging sites. For instance, eagles that have foraged in productive areas during the day will fly to roost with bulging crops. Eagles that went hungry will recognize these sated eagles and presumably follow them to fertile foraging areas the next morning. Strong evidence supporting this concept exists for blackbirds, but is still lacking for bald eagles.

At Hauser Lake, most roosts are located in dense ponderosa pine and Douglas-fir stands. Such areas tend to be protected from high winds and the radiational cooling that often

occurs during clear autumn nights. We have found eight roosts in the vicinity, all located one to six miles from Riverside. In 1991, we began counts at the largest roost to determine the number of eagles entering in evening and leaving in morning. Although nocturnal roosts near Hauser Lake are smaller in size than those at Glacier National Park, they are nevertheless impressive. Each night for two weeks from late November to early December, more than 100 eagles flew to the largest roost, with a peak of 153 on one evening! Most eagles arrived at the roost 10 minutes either side of sunset on clear nights, but somewhat earlier on cloudy nights. Apparently roosting behavior is triggered by light intensity. Eagles

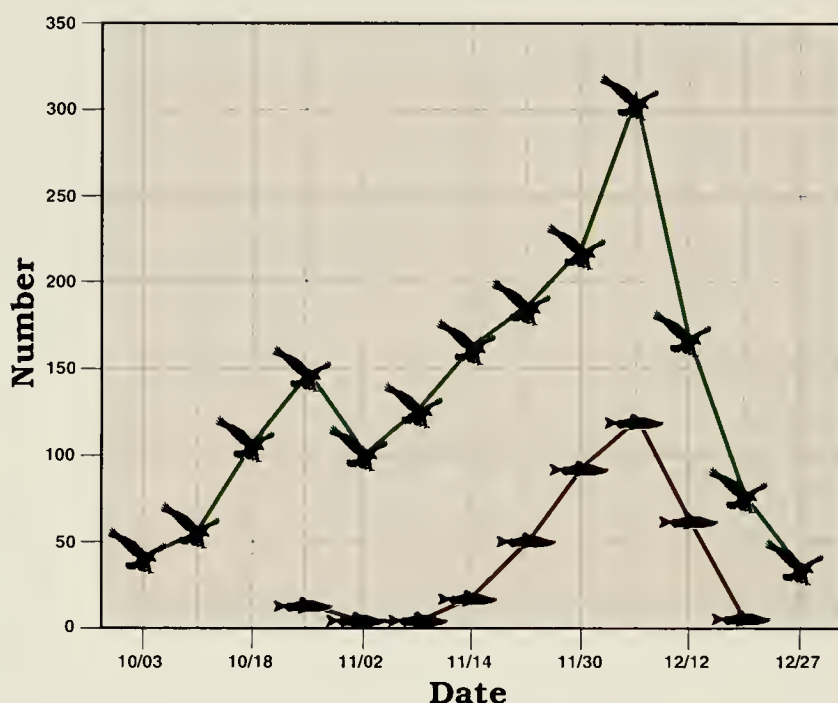


Figure 1. Number of bald eagles and kokanee salmon carcasses counted at Hauser Lake during autumn 1991.

Lake are not the same eagles that once visited Glacier. How? Riley McClelland and his assistants color banded over 300 eagles at Glacier, none of which has been resighted or recaptured at Hauser. Thus, we feel that at least two major eagle migration corridors exist in Montana, one passing by Glacier, the other by Hauser.

Although only two of 64 bald eagles banded at Hauser Lake have been recovered, evidence indicates that the lake is on a major migration corridor. It took eagles only a few years to discover the Hauser kokanee run. In contrast, kokanee were spawning in McDonald Creek almost 30 years before large numbers of eagles discovered the run and began to congregate

departed the roost 20 to 30 minutes before sunrise on clear mornings, but a bit later on cloudy mornings.

In addition to banding, we radio-tagged some eagles captured the past two autumns by attaching radio transmitters weighing less than one ounce to the two central tail feathers (the transmitters are shed the following spring when the eagles molt their tail feathers). By following (i.e., radio-tracking) these birds using special receivers and antennas that can detect signals up to 30 miles distant, we were able to locate several secluded roosts and foraging sites. We also wanted to know if individual eagles stayed at Hauser Lake until mid-December regardless of when they arrived, or if eagles were continuously arriving and departing. Specifically, we wanted to know how long individual eagles stayed at Hauser. A few days? Several weeks?

We found that eagles that arrived early (October and early November), when salmon carcasses were largely unavailable, stayed only a few days. In contrast, eagles that arrived later (mid-November), when carcasses were abundant, stayed for weeks until mid-December. The abundant food supply probably encouraged late arrivers to stay at Hauser Lake longer. Those eagles probably fattened up before continuing south to their traditional wintering grounds.

We noted some evidence of this by watching individual eagles gorge on more fish than necessary to maintain their body temperature. One eagle ate three fish in less than an hour. This was astounding because each salmon weighed an average of over one pound! Eagles that establish good energy reserves may improve their chance of survival during the ongoing southward migration, especially the younger, inexperienced birds.

Approximately 75% of the eagles counted during our weekly censuses were found along the three river miles below Canyon Ferry Dam. Not surprisingly, this area also was the site of the greatest salmon spawning and subsequent carcass availability. Bald eagles used three different foraging techniques: (1) grabbing kokanee directly from the water, (2) finding kokanee carcasses washed onto shore, and (3) stealing fish from other eagles. Older eagles obtained most of their food by seizing fish directly from the river. These spectacular foraging flights were seen most often in

early morning, one to two hours after sunrise. After plucking a live or weakly swimming kokanee from the water, older eagles flew to secluded conifer perches to feed while trying to avoid losing their prize to aggressive younger eagles. Younger eagles, particularly juveniles that had fledged only a few months earlier, had not yet honed the skills necessary to consistently capture live

leaving the young eagles with a perplexed, hungry look. Adult eagles rarely participated in such brawls, preferring instead to forage alone. Interestingly, younger eagles left roosts earlier in the morning than adults, probably to capitalize on fish washed ashore during the previous night.

Extensive local, state, and national media coverage has brought large numbers of



MARCO RESTANI

Researchers record the plumage of a subadult eagle for an age composition study.



fish from open water. Instead, they tended to steal most of their food from other eagles or find it lying on shore.

We often saw groups of five to 10 young eagles on the ground near Riverside squabbling over a single fish. "Ownership" of fish changed quickly during these feeding/fighting frenzies. By the time fights ended, fish often had been torn into small pieces,

people to view the concentration of bald eagles at Hauser Lake. In autumn of 1990, over 10,000 visitor-days were recorded at Riverside Campground. Clearly, the public is deeply interested in witnessing the eagle/kokanee phenomenon. Unfortunately, increased media and public attention also has increased the potential for human-eagle conflicts. To protect the congregating eagles,

BALD EAGLE PLUMAGE CHANGES BY AGE



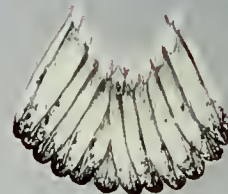
Juvenal plumage

1/2 Year



Basic III plumage

3 1/2 Year



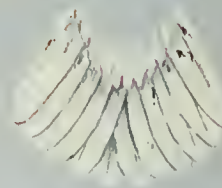
Basic I plumage

1 1/2 Year



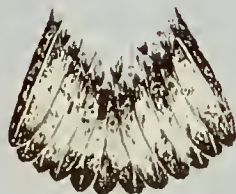
Basic IV plumage

4 1/2 Year



Basic II plumage

2 1/2 Year



Definitive plumage

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resource management agencies have instituted an autumn closure that prohibits boating on the river and walking or driving on shoreline areas from Canyon Ferry Dam

downriver approximately three miles.

The vast majority of people who have visited Hauser Lake to observe the eagles have obeyed the closure. A few, however,

have wilfully violated it and disturbed dozens of eagles. Eagles forced to fly because of disturbance are wasting valuable energy better expended during migration. Young

eagles are most vulnerable, since they have not yet learned the skills necessary to ensure survival. Protecting eagles from disturbance increases their likelihood of survival by allowing them to "refuel" for the continued migration.

We hope the number of closure violations will decrease as more people learn about the needs of migrating eagles. Congregating eagles need space free from disturbance during both daylight and nighttime hours, timber stands suitable for roosting, and productive foraging sites. A good place to learn more about bald eagle ecology is the newly created visitor center at Canyon Ferry Village. Here eagle watchers can find interpretive information regarding the kokanee/bald eagle gathering and other displays depicting the ecology of the Canyon Ferry-Hauser Lake system. In addition, trained volunteers are available to answer questions on weekends in November at Riverside.

Although the closure was instituted to protect eagles, several viewing areas were left open so the public could enjoy the kokanee/eagle gathering. The best viewing area is located at Riverside Campground. By arriving within two hours of sunrise, visitors will see eagles actively foraging for kokanee. We have observed spectacular eagle behavior from Riverside, even while watching from the comfort of our vehicle. All that is required is a little fortitude in the cold morning hours, a pair of binoculars, and some patience. For those who dislike crowds, visiting Riverside during the middle



MARCO RESTANI



JUDITH E. STROM

By banding and radio-tagging eagles, researchers can track migration routes and locate secluded roosting and foraging sites. Radio transmitters attached to the two central tail feathers are shed the following spring when the eagles molt their tail feathers.

of the week or seeking out one of the more secluded viewing areas may provide a more satisfactory experience.

Some people who visit the eagle viewing area are surprised to see bald eagles in various plumages, not just the familiar black body with white head and tail typical of adults. Eagles take four to five years to acquire adult plumage, each year passing through a distinct plumage. The dark brown heads and tails of younger bald eagles

sometimes cause inexperienced observers to confuse them with golden eagles. Golden eagles, however, are seldom observed at the concentration because they prey primarily on mammals and rarely on fish.

Because kokanee salmon populations are prone to dramatic changes, it is difficult to predict the direction the fishery will take in the future. Experience in other locations suggests that the salmon population will plummet at some point, and when that happens, eagles will no longer gather at Hauser Lake during autumn. Instead, they will quickly continue on to more productive foraging sites. For now, however, the autumn concentration of bald eagles is a unique event, providing professional and amateur eagle watchers alike spectacular viewing opportunities. ■

